

# Absolute Magnitude

*The Magazine of Science Fiction Adventures*

\$4.00 (CANADA \$5.00)

RETAILER: DISPLAY UNTIL MAY 15th

Terry  
Bisson

C.J.  
Cherryh

Hal  
Clement

Geoffrey  
A. Landis

Bob  
Eggleton

1991 Wayne Thomas

WINTER/SPRING 1991



# Editorial Notes

by

Warren Lapine

$M = m + 5 + 5 \log p$

*I am often asked by writers what it is that makes a story an Absolute Magnitude story. Usually I just point to a line in my fiction guidelines: "We're looking for character-driven action/adventure based technical science fiction." But invariably some writer will say, "But what does that mean?"*

*I am always tempted to say, "Just what it says." But instead I smile and elaborate. I buy stories about people hence character-driven stories; it is my firm belief that characters are the single most important thing in a story, and that's why characters are the first thing that I mention in my fiction guidelines. The second thing I mention is action/adventure. I'm looking for stories that move quickly and have an easily discernable point. That is, someone is doing something for a good reason. I'm not really interested in stories where everything is shrouded in mystery, especially if everything is still shrouded in mystery when the story ends. The last thing I mention is technical science fiction. That means real science, no magicians, no vampires, just science.*

*I want to explore how people will be effected by technological advancements, how will we be different in the future, if indeed we will be different. The stories that I buy are not about future developments, they are about people. People who are confronted with a problem, and who as a result of facing this problem are forced to grow. The more exciting the problem the better the chance of selling me your story. Still, it always comes down to the characters. People want to read about people.*

*I hope that clears everything up, an Absolute Magnitude story is a character-driven action/adventure based technical science fiction story.*

## Contest Results

### Grand Prize winner:

Kent Culberson

### Runners up:

Diana Giroux	Sonia Orin Lyris	Uncle River	Deidra Cox
Bruce Boston	Michael Heald	Joy V. Smith	Kelly Riffle
Robert C. Danley		S. Darnbrook Colson	

*Absolute Magnitude* would like to thank everyone who entered the contest to rename our Magazine.

## ABSOLUTE MAGNITUDE

The Magazine Of Science Fiction Adventures

### D.N.A. Publishing

Warren Lapine  
Kevin Murphy  
Stephen Pagel  
Brian Murphy

### Editor-In-Chief

Warren Lapine

### Art Director

Kevin Murphy

### Marketing Consultant

Stephen Pagel

### Production Manager

Brian Murphy

### Associate Editors

Casey Gallagher  
Angela Kessler

### Advertising Coordinator

Terry Kepner

### DISTRIBUTORS

Ingram Periodicals, Inc.  
International Periodic Distributors  
Fine Print, Inc.  
and others.

### SUBSCRIPTIONS

Get *Absolute Magnitude* delivered to your doorstep! Get four issues for only \$14. That's a savings of over 12%. Make all checks payable to D.N.A. Publications, U.S. funds only, please.

### CORRESPONDENCE

We look forward to receiving your comments. All letters sent become the property of *Absolute Magnitude*. We reserve the right to edit and/or comment upon any letter included in the magazine. Correspondent's full address will not be printed except upon specific request.

### ADVERTISEMENTS

Ad guidelines and rate card are available upon request. Write to D.N.A. Publications, P.O. Box 13, Greenfield, MA 01302-0013.

**Absolute Magnitude**, The Magazine of Science Fiction Adventures, Issue #2/Harsh Mistress Issue #4, Spring 1994 (ISSN 1070-6569). Published quarterly by D.N.A. Publications. **POSTMASTER:** Send address changes to *Absolute Magnitude*, P.O. Box 13, Greenfield, MA 01302-0013. Material from this publication may not be reprinted or used in any form without written permission from the Editor-In-Chief, except short passages and graphical representations used strictly for review purposes. Copyright © 1995 by D.N.A. Publications and individually copyrighted by the authors and artists who have contributed to this issue. *Absolute Magnitude* encourages free-lance submissions, but we cannot be responsible for unsolicited manuscripts or materials. All such submissions/correspondence must include an SASE for response/return of materials. Writer's guidelines are available.

# Absolute Magnitude

*The Magazine of Science Fiction Adventures*

SPRING 1995

ISSUE #2

## Table of Contents

Rocket's Fire by Bob Liddil .....	2
10:07:24 by Terry Bisson .....	3
Morning Star by Gene KoKayKo .....	5
The Minds Who Jumped by F. Gwynplaine MacIntyre .....	19
The Scapegoat by C.J. Cherryh .....	29
<small>first appeared in <i>Alien Stars</i> a Baen anthology.</small>	
Our Stories Continue by Gregory Feeley .....	47
Sumiko's Hope by T. Jackson King .....	57
City of Ultimate Freedom by Geoffrey A. Landis .....	65
<small>First appeared in <i>Universe 1</i></small>	
Newcomer's Corner	
Roundup by Michael Johnson .....	71
Eismic Sidetrack by Hal Clement .....	75
<small>part three of four</small>	
An Interview With Bob Eggleton .....	89
The Letters Page .....	92

*All illustrations by Bob Eggleton (except border for Rocket's Fire)  
Photo by Kristine M. Struminsky*



## Rocket's Fire

by  
Bob Liddil

Copyright © 1994

*If I could touch the stars but once  
It would be my desire  
to lift toward the heavens  
on a thundering stream of fire*

*If I could reach beyond my bonds  
it would be my fondest dream  
to ride the rocket of mankind's hope  
to the edge of the twilight's gleam*

*If I could take the rocket ride  
to the final frontier's birth  
I'd gladly gently softly glide  
back to the sheltering earth*

*If I can only dream the dream  
as others soar ever higher  
in imagination I'm by their side  
as they ride the rocket's fire*

*While talking with Terry Bisson at a party, I asked him if he would send me a story. He smiled and said, "Warren, I'm not going to send you a story." This is the story that he didn't send to me. Terry Bisson won the Hugo award for "Bears Discover Fire."*

# 10:07:24

by  
Terry Bisson

Copyright © 1994

Hello?

It's me.

What is it this time?

I have this great idea for a story.

Not another science fiction story. Do you have any idea what time it is?

Sure, it's 10:07:24. But you're going to love this one.  
Please. I don't have time for it.

This is a story about Time, as a matter of fact.  
I can't use another time travel story.

This is different! In this story, it's Time itself that travels.  
So what? Time always travels. It stops, It goes.

In this story Time does nothing but travel. It can't stop. It can't not travel.

I said no science fiction.

No way! This is speculative fiction, based on the cutting edge ideas of the new physics. This is real Rudy Rucker stuff! Imagine a universe where time never stops. It just rolls on, hour by hour, minute by minute, second by second. Mini-second by mini-second.

I don't get it. What do you mean, time never stops? There's no Present? No Now?

Exactly! By the time you say the word "now," that Now is gone, and there's another Now. Then another and another.

Time only stops for like a second at a time? Is that the idea?

Time doesn't stop at all! Not for a second. Not for a mini-micro-nano-second. It keeps flowing along, like a river. Like an ever-rolling stream. Like a bowling ball!

That's ridiculous. There has to be a Now where Time is stopped. Like right now—10:07:24. Otherwise how could anything exist?

In this universe we're talking about, everything exists in the Now, but it's a moving Now.

Isn't that a contradiction in terms—a moving Now?

In our universe, the real universe, yes. But in this speculative universe, it's the other way around. Look at it this way. When we visualize Time, it's like a series of lakes, right? They're all at . . .

I'm not stupid. I know what time is like.

Sorry. But now visualize a universe in which somebody has blown the main dam, so to speak. Time is a stream: moving, flowing like a river, continually in motion—

Ridiculous. Not only intelligence but matter itself would be unthinkable under such conditions.

But what if the moving Now seemed perfectly normal to the denizens of this universe? Imagine it! Riding the foaming crest of Time like surfers on a wave. Poised between past and future on an ever-changing, never changing Now . . .

Stop! Who'd want to read stuff like that? Makes you dizzy just to think about it.

Exactly! It's dizzying, disturbing, exhilarating, thought-provoking. That's the whole idea! It will start a whole new literary trend. We can call it chronopunk, a mind-blowing new meta-fiction from the cutting edge of quantum physics

where . . .

You're wasting your time. I can't imagine it. I won't bother to. A world in which Time never stops? Never even pauses! That's worse than science fiction; it's fantasy.

But that's where you're wrong. Are you ready for the best part? I didn't make this up! It's all based on science fact. At least theory. I read about it in Omni.

Omni. No wonder.

Seriously. Scientists are speculating about alternate universes where Time might flow in a constant stream. Where there's never a fixed chronological point, not even for a micro-second. It's never been demonstrated, of course, but it's possible, according to the laws of relativity and quantum mechanics. It's even probable.

Like light matter?

Exactly. Or suns. That's the beauty of science fiction. We can take the far-out ideas of theoretical physics and make them seem real by putting them in a story.

I thought you said this wasn't science fiction.

I was using the term loosely. I meant speculative.

And there hasn't been even a hint of a story.

I was just getting to the story. You have these people—a woman and a man, say, so you've got a love interest. She's a scientist. She looks at her watch and suddenly . . .

Why is the woman always the scientist?

He's the scientist, then. Whatever. Looks at his watch. What time is it? she asks. Well, he can't tell her! Time keeps changing! He waits for it to stop but it doesn't. There's no Now! Now is continually turning into Then—

I thought you said it was normal for them.

Okay, what if it wasn't. What if they were just noticing. You have to have a story. It could be funny! He looks at his watch and says, "The time is . . . is . . . is . . ." She says, "Well?" He says, "Is . . . is . . . is . . ." It could be hilarious.

A guy looking at his watch and stuttering is not all that hilarious.

It could be an adventure, then. They try to do something about it. That's it, of course! They're both scientists, faced with the ultimate disaster. Runaway Time! Maybe they try to stop Time. With an atomic clock. Or something.

I hate to interrupt, but it is 10:07:24.

Imagine the suspense! What if Time runs out before they can stop it? What if . . .

I hate to interrupt but we've wasted enough time on this.

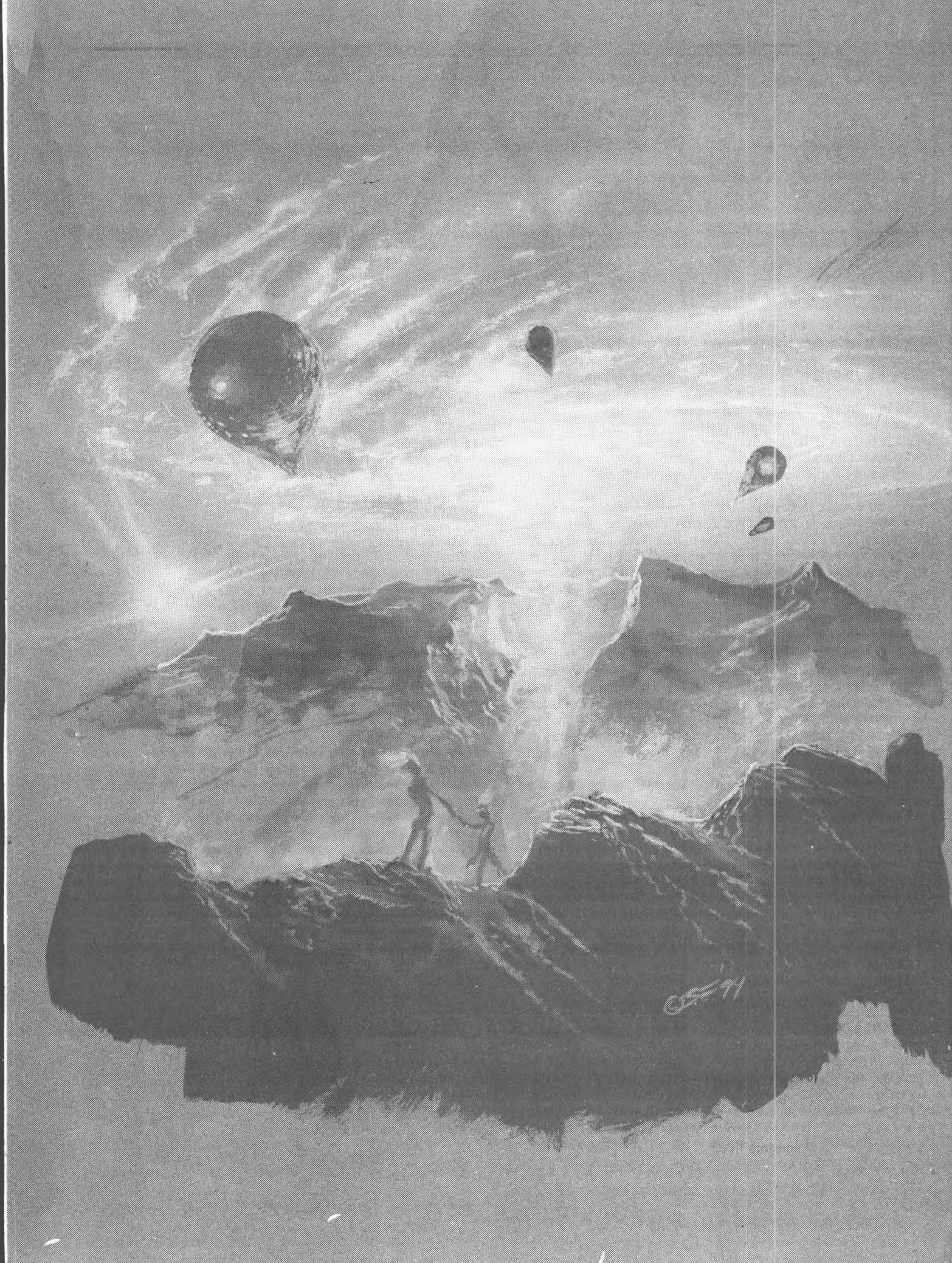
You said yourself it's still 10:07:24.

Yeah, but it'll be another time before you know it. And I'm going to have to pass on this story idea. Our readers want stories they can identify with, not wild speculations on theoretical physics set in bizarre alternate universes, no matter how thought-provoking. Try a math magazine or something. One question, though. While it's still 10:07:24.

What?

What the hell's a rucky rooter.





## MORNING STAR

by  
Gene KoKakko

Copyright © 1994

Joby and I watched it burn. In the green glow of pre-dawn, the Buster's steel turret looked smaller than it had the night before. The Buster looked the same, though—bugeyes bursting from his skull. He had died crawling out, withered in the heat from our cocktail.

"So what's that get us?"

Joby looked at me as though I'd lost my mind. "Bingo, we get a day off if nothing else. The Ancestors have to send someone down now."

It made me shiver. I knew there was more to it than a simple day off. Joby was so sure of himself, so sure the others in the crib would listen. But as persuasive as Joby was, I was just a miner, and my hands ached for something to do. I played with the autopick, kicking up dirt and rocks. I leaned on it harder and broke through the crust to a mineral layer below. Spumes of quartz rose around my ears.

"Can't you leave that alone, Bingo?"

I stared at the busted Buster. "What if they send another Buster?"

"Bingo, you're a fool. You know that?"

His words hurt me, as usual. Joby was the smart one in the crib and I loved him. He'd been the rebel among us, always taunting the SynthiStrucs who passed as teachers and bosses. Once, after dark moon curfew, Joby tossed a firecracker through our crib bars at a passing Buster. Confused and angry, the Buster almost tore the dorm wall down searching us out. But we all feigned sleep till the crib mother drove the Buster off. Joby just grinned and winked in his play sleep while I shook and trembled something awful.

But on many nights, after the loving, Joby would hold me tighter than usual, his bushy hair soft on my breasts, and we'd talk about how the Ancestors used to have children like themselves. Something terrible happened on Earth, Joby said, children were an impersonal thing now, like something one would grow in a garden outside a crib. Sometimes Joby showed me pictures to go with the words and that helped. Other times the words fell on my ears like stones from the sky, the way they fell when it stormed on Deathwish. Deadly stones that stung and hurt. Meaningless but painful.

I had to ask, "So why won't the Ancestors send another Buster?" Out of habit, I'd picked up the autopick again and was digging out the minerals below the quartz.

Joby stared through the small homemade telescope at the new morning sky. "You think they can waste them? Huh? The Ancestors have limited resources. Just like us."

I stared up to where the scope pointed, betwixt the two moons of Deathwise. I couldn't see a thing but the light from the two moons.

"Come here," Joby said.

Trying not to grin, I moved.

"Now, put one eye on the eyepiece, there."

I did. The right.

"Now... See?"

"It's another moon!"

"That's where the Ancestors live," he said slyly.

"Naah. It's too small."

"It's bigger up close, you idiot."

See. Bingo the fool. I'd tried to catch up with Joby, tried to read all the stuff he'd read. He knew about the Ancestors from the microdisks in the old library complex beneath our crib. We used to sneak out at night and slip down the steep spiral stairs, two flights below. No one had used the library since the crib mother had suddenly stopped teaching us the simple reading and writing that helped us fill the mining orders. Joby thought there was a war, back on Earth, or a war at another of StarBrite's Colonies. He figured out a lot from the history section. At first the Ancestors themselves had tried to mine this planet. But living in environmental suits proved too difficult; and they didn't have enough Busters for a real labor force. "The mother of our invention," Joby called the planet. The library was dusty and cobwebby, but Joby found one lone monitor that still worked. With the basics he remembered from years before, he began his education. I'd tried to keep up, but there was something wrong with my eyes; all the letters looked backwards and fuzzy to me. So mostly, I watched old disk holos on mining techniques in the New Colonies while Joby read.

We had always mined, and I was good with an autopick, better even than Joby. Only old Cepheid, from the people before, had been better. She taught me all her tricks before slave labor shriveled her into an old woman. I still remember the mechs taking her body away when she died. I wonder what they do with bodies? Even Joby doesn't know.

"Tell me again why the Ancestors can't live here," I said, once again using my pick.

"You know why," he said.

"Yeah." I grinned because I really did. But the more questions I asked, the more attention Joby paid me. "They can't breath the shit we breathe, right?"

"Right. That's why they use Busters; and wear the big flimsies with the breathers."

I nodded. I knew that too.

Joby ignored me again and looked through the scope. I was trying to think of another question that would get his attention back when he swore, "Unholy Ancestors! I don't believe it. Sooner than I thought."

I flicked the switch on the pick, turning it off. "Whadaya see, whadaya see?" I was excited because Joby hardly ever took the Ancestors' name in vain.

"They're sending a ship," he said. "I can see the burn!"

Uh-oh, I thought. "Now what?"

"Time to recruit the sheep," Joby said. He quit the scope and waved for me to follow. We moved toward the crib house at a fast run. The thick fog of Deathwise hadn't lifted yet; the green air was dense as we ran. I wanted to tell Joby to leave the sheep alone, but I was too out of breath.

The rest of the brothers and sisters ran back to the crib when Joby and I fired the Buster. They huddled now, two to a cell. Joby burst through the blasted door and past the SynthiStruc who was our current crib mother. He'd clubbed her in the

# Absolute Magnitude MSFA

night, smashed the back of her titanium skull where the electronics were most vulnerable. She lay across her big desk, a false grin of sympathy on lips moist with the condensed atmosphere of Deathwish. She'd start to stiffen up soon. And her proteins would start to stink. The sheep didn't seem to care. They shivered in their cribs. Or slept.

"Wake up, you offspring of genetic freaks!" Joby yelled. "I've come to set you free."

No one moved much. Except me. Joby's verbal enthusiasm always made me jump.

Tingle stuck her head up, though. Tingle and I were tube sisters, so the records said. But we weren't close now, even though we looked alike. Same mother tissue, Joby told me. "The strike's on," Joby told her.

Tingle winced, then stared around at the others. Some looked up, most kept their heads down, or looked away.

"Come on, Tingle. We've talked about this."

She shrugged. "We do need... changes."

Her crib mate, Dolphin, picked up the sentence before she could start again. "They'll fire us," he said. "Then what'll we do?"

Joby put on his big grin, the one that scared me. "They'll do worse than that now. We've already killed two of them."

"You have, you mean! We didn't do anything." Dolphin paused, then said, "We'll apologize and pay for the damages, that's what we'll do."

"Fucking sheep," Joby muttered.

"We'll work extra shifts," Dolphin added.

"Worse than sheep," Joby said. "Sheep embryos, just like the holo disks show." He seemed disgusted, even with himself. It made my breasts ache to see him hurt like that. "Joby's right," I said. "We have to fight."

Dolphin sneered. "Lovers," he said. "I've seen you two sneaking off..." He didn't know where to, obviously. "Don't listen to her, she's a defec anyway."

Dolphin's words hurt too, in a different part of me than Joby's had. Maybe because he was right. I was a defec. I can't remember the alphabet and words look blurry in places. Joby said they probably spliced me funny when I was still a cell group. He said maybe it wasn't even my fault, that my Ancestor was a defec, too, a latent that the biocheckers had missed. My thoughts and my possible retort were cut off, however, as the morning lights went off along the wall.

"Breakfast," Tingle cried. "Maybe everyone will shut up now and eat."

She rushed to the wall socket and inserted her hand. But something was wrong. The light went red, then blinked. She jumped back, shocked. Tingle's face cringed up, tears at the corner of her eyes. "It hurt me," she said.

Joby laughed, an empty sound without humor. "They've turned us off from the station."

Dolphin ran to the wall. "No," he said. He looked at the ceiling. "We're sorry," he cried.

"Don't beg," Joby told him.

But Dolphin did, staring at the ceiling as if it held a god who would listen.

"You don't understand," Joby said, "it's already too late. They've sent a ship. They'll punish us."

The brothers and sisters poured from their cribs then, crawling on the floor, exhorting the wall food unit and the ceiling. One even tried to waken the dead SynthiStruc.

"Sheep," Joby said one last time. "I should'a known better." He grabbed my hand and pulled me toward the slide that led down and out of the crib house.

We slid, me holding tight, fast to my love and my life. I was worried about the ship, too. According to Joby, it would arrive in less than an hour. What would we do then?

Outside, the curvature of Deathwish's small star cut the horizon. The star's corona blurred the edges of the atmosphere, green sheets of fire in the sky. The air was chilled with the night's turning and both moons were up, though they were quickly sinking toward the opposite horizon. I stared through the green mist to search out the Ancestor's torch, but I couldn't see anything.

The Buster's Crawler still burned hot from the chemicals we'd hit it with, the Buster slumped across the turret. "What will happen to the crib?" I said, my eyes traveling back towards our brothers and sisters.

I watched the emotion tickle its way across his broad forehead. "What'll happen to us is the better question." Despair clouded his face as he sat on the hard, cold ground. Maybe it was the morning air, or maybe it was something else, but suddenly, for the first time, I was very scared.

I put a hand on his shoulder. "Joby? What are we going to do?"

He shook his head, all the rebel seemingly dead in him now. "I was so sure I could talk them into a strike." He let out a green stream of air. "We can't do it alone."

A meteorite exploded in the upper atmosphere and I flinched. For a second I thought it was the ship with fresh Busters aboard. Would they kill us, as we had them?"

"Joby?"

He didn't look up.

"We have to do something or they'll kill us."

He wrapped his thin arms around his knobby knees. A thick strand of chlorine-bleached hair fell across his eyes. Although he wasn't, Joby looked like a little boy.

"What if we hide in the library?"

"No. Dolphin knows about the library. They'd just find it and dig us out."

I looked around. The perimeter was bleak, a high electronic fence surrounding the camp. I could see it shimmer in the slowly dawning light of the morning. When full light came, the shimmer would disappear and the fence would be twice as deadly. I wasn't as smart as Joby, but I couldn't see where we had much choice. "We have to jump the fence," I said.

Joby grinned, some of his old rebel self lighting up his face again. "You're kidding. You'd try that?"

"I'll try it. I'll try anything to get out of this."

He pushed himself to his feet. "I have to get some stuff from the mining shed first."

We made it out just in time.

"Hook that second clip to the second knob, the blue one," Joby said.

The fence loomed, higher than our crib walls, and I thought we were dead for sure. Joby moved the clips around, hooking here and there, and the shimmer died. A gate of normal atmosphere settled in the gap, a meter-wide space that wasn't electrified.

We struggled through, both weighed down with heavy packs loaded with equipment Joby had picked up from the sheds. "What is all this stuff?" I asked.

"Explosives, mostly. Some timing devices."

"You know how to use those?" I was surprised because only the supervising Busters used those, when we couldn't mine with the drills or the picks.

His grin looked tired as we trudged into virgin territory. "How many years have I spent reading in that library? You

# Morning Star

have any idea?"

"Since we were children." We'd had our full growth now for years.

"I can do it," he said. He took a deep breath as we walked. "I know I can." Above us the torch of the Ancestor's ship cut a narrow swath through the thick atmosphere. We both hunched lower, as if the Ancestors could see us slinking along the ground. The land was rising around the basin of the camp, new land that neither of us had ever seen before. Even Joby didn't know about this.

We paused at the top of the rise and looked back. Three teardrop shapes dropped from the Ancestor ship like fat rain spilling to the ground inside the fence. Spotlights cut the thick atmosphere—played up against the side of the crib house, then back. They were going to be very angry, I thought. Maybe even vengeful.

Just before we topped the rise to move on, I saw figures spill from the teardrop ships, people in membranes as thin and transparent as the sac a human baby is born in. I watched holos about that. We never had children, of course. The Ancestors had sterilized us. Or the splicing process had.

I wanted a child.

Bingo, old girl, it's impossible, Joby would tell me.

Still. . . Some part of me wanted a child. I didn't know why. The explosion from the camp knocked the thoughts from my head and rumbled the earth beneath our feet.

Joby turned and grinned at me. "Takes care of that."

I put a hand on his shoulder. "What did you do?"

"I told you Busters were expensive. I loaded the one we torched. It just went off."

"You mean they tried to save it?" It made me sputter the next words. "Why? It was dead, wasn't it?"

"But—" the implication hit me like a stone storm. "You probably killed an Ancestor.

"Spare parts."

He nodded. "The strike is on, remember?"

How could I forget?

The down side of the hill steepened and Joby didn't answer any more questions. We both had packs on our backs and chests, and Joby carried a bunch of junk in his hands. If one of us stumbled, we were a long time from help. Don't twist an ankle and become a burden, I thought. Be sure-footed. But the weight from the chest pack pulled me forward through the dust and rocks and into Joby's back, he shrieked as he toppled forward, both of us going down in a heap.

My jumper tore, and one palm was peppered with tiny pebbles, like being blasted by a quartz storm, but I wasn't really hurt. Joby, though. Joby was quiet as moonrise. I've killed him, I thought. Bingo, the biggest, dumbest girl in the complex. I wanted to weep, but I couldn't. Too much had happened in the last planet turn, too many things had changed. I needed to be strong, I knew. If Joby was dead—

He slapped my bottom.

"You should see your face," he said. He laughed for the first time in days.

"You Buster slime. Scaring me like that!"

The next words came through his grin like sweet, after-meal treats. "Are you hurt?"

I glared at him, my look slicing through him like steel. "No," I said. Then I started to laugh with him. Our voices rose with the orange sun of Deathwish, making the heavy atmosphere seem lighter. The green mist that always hung near the ground in the early mornings was starting to dissolve with the sunlight, and suddenly, things didn't seem so grim. They

didn't really seem laughable, either, but it was better than crying.

I looked at him as we stood up. "What's next?"

His backpack had fallen to the ground and he opened it now with a flourish. Inside it looked like a supper food tray, silvery and gray, flat like a gridrock, ribbled like Joby when he forgot to eat. There were finger-like protrusions from one end. "Deep mine explosives," he said. "With a timer."

"What good does that do us?"

"None. Unless you have these." He ripped off his huge chest pack and removed something that looked awfully familiar, though I couldn't quite place it.

"Well?" he said.

I hate being stupid. I shrugged.

"Besides the baggies, what do Ancestors wear?"

"Breathing filters!" I paused. Something wasn't right. "But they don't breath the same—"

Joby cut me off. "Give me credit for thinking of that." He pulled two torpedo shapes from the bottom of the bag. "Our atmosphere, or as close as I could get it."

I didn't ask how he'd done it. Joby was always sneaking off while I worked his part of the shift, sneaking off to one supply shed or the other. But I trusted him.

"What are we going to do with it?"

He sighed and looked up to where the station would be if he could have seen that far. "I don't know. Somehow we'll have to get up there."

I looked up too. The Ancestor's home station. The place they lived and we were born.

"Sure," I said. "They'll invite us, no doubt."

Sometimes, I thought, Joby wasn't so smart. We walked away from the complex carrying all that extra weight because he wanted to blow up the station. The Ancestors would never let us go up there. Why should they?

A moment later we almost died. A repulsor fence grew from the ground on the other side of the hill, and talking as we were, we didn't even notice. Joby scraped it with his chest pack and it threw him back. The shimmer from the fence was lost in the rising sun, and if I hadn't kicked a rock into it, we still wouldn't have seen it.

The rock crackled against the charge. Sparks flew. Joby pulled me back, down to the ground with him.

The fence was different from ours; it climbed to the sky, topped with a filmy, plastic dome. Looking through it we could see strange-looking brothers and sisters working in the fields. The plants were green, yellow and red, rows and rows of them, I realized it was a food farm. I always wondered how they grew all the food on the station. Joby thought they had hydroponics, but I didn't think that would do it. For once, I was right.

Hunched against the ground, my thighs started to cramp. When I shifted my position just slightly, Joby thought I was going to stand, for he jerked me to the ground.

"Watch out," he whispered.

A Buster, larger and meaner than the one we'd killed, buzzed along the electrical fence. His large titanium skull swiveled in a full circle, the flasher in the center of his forehead blinking yellow warnings as he moved. The Buster's voice grumbled along the fence, seeping weakly through to Joby and me. "Rain in one minute. Move back to the crib house, please."

The filmy dome filtered the sunlight, turning it varied colors, reds and blues, I'd never seen so distinctly before. The colors fell in long beams and played across the bare heads of the farmers. They looked much leaner and taller than the brothers

# Absolute Magnitude MSFA

and sisters at the mining camp, as though grown from a slightly different mold.

Everyone started to shuffle off as if dazed by the streaming colors and the Buster's heavy voice. One who looked very young broke into an almost gleeful run, squalling in the delight as the first drops of water fell. Clean, pure water, I realized. Not the green acid-filled rain that the clouds of Deathwish produced. In our compound they used tanks brought in by the Ancestors. We were always short of usable water. Here the green tops of plants sprouted from the ground and seemed to swell with each drop, fed, I guessed, what a food plant had to be fed. Alien plants on an alien planet which fed us all.

Sparks flew, and more importantly, I noticed the difference inside the fence and out. Joby mumbled, "It's a two-way repulsor fence; it keeps the atmosphere of Deathwish out." He shook his head as if stunned by the possibility. "They must breathe oxygen."

The thought startled me. Oxygen was a poison, painful and deadly when inhaled.

"They aren't much good to us," Joby said.

"How do they make the rain?"

"I don't know."

The Buster moved on, and Joby couldn't contain himself any longer, his curiosity pulling him like a magnet to the repulsor fence. I tagged along, although I didn't want to. I was worried about Tingle and Dolphin, all the brothers and sisters we'd grown up with and now left behind. We had to get back, in case they needed us. We couldn't let them face the Ancestor's wrath alone. I grappled with the back of Joby's jumper to slow him down. "I just want to take a closer look," he told me, his voice going away, damping against the repulsor fence.

"Watch out for the Buster," I started to say, but he cut me off.

"He's gone, way down the fence. It's okay."

While Joby examined the fence, staring at it as though he could understand its secrets just by looking, I caught the kid's eye. His hair was long and black, and he was watching us from the other side of the fence.

I tugged at the back of Joby's jumper.

The kid squinched his face up in a grin. "What ya' doin' out there?" he asked. His words were faint through the fence. Joby twitched at the sound of an unexpected voice and backed into me.

He and the boy locked stares. I had never thought much about age before then, the boy was so much younger than we were, that it made me think. We were all the same age at the mining colony, or so appearances led me to believe. This was just a boychild.

Joby moved a finger to his lips. "Shhh," he said. "Don't turn us in."

"You'll die out there," the boy said. His head bobbed toward the Buster, or toward something we couldn't see. "They told us that."

"Who told you?" Joby asked.

This time the boy pointed up. "The funny ones who live up there, above the sky."

"The Ancestors," Joby said.

The boy looked blank. "No," he finally said. "The Protectors." He made a boyface then, a mixed expression of hate and confusion.

"And what do they protect you from?"

The child looked puzzled. His shoulders lifted, his face a quizzical mask of twists and turns. "From the planet, the poison air and rain."

Joby shook his head sadly. "That's why they need Busters? To protect you?"

Both of us had forgotten the Buster, but he'd found us. "Warning!" his voice boomed. "You are in a dangerous and illegal area."

His lights flashed red now, his large skull perched on thick metallic shoulders. "Present credentials, please."

We turned and tried to run.

A hot flash of light kicked up green dust around our feet as we moved sluggishly away. The packs weighed us down, Joby, with his longer legs, overtook me. "Laser synched with the repulsor fence," he screamed as he went by. As though I cared to know at the moment.

Chlorine and ammonia gas sucked into my lungs, a greenish-yellow plume floating like dragon's breath when I exhaled. With the dirt and air crackling around me, pitting my back and legs, it was a strange thought. But Joby had shown me pictures once, from a myth story, and the image fit. I was bad with words, but I was good with pictures. It was the way my mind worked.

I had questions, though. Many things I wanted to ask. Why, for instance, were these brothers and sisters different from us? Why didn't we have a repulsor fence and a filmy, plastic sky that poured pure and real rain?

The answer haunted me all the way over the hill as I dived for cover. These people were more directly related to the Ancestors. They were oxygen breathers. As I hit the ground, my breath came so hard dust balls puffed around my ears.

Panting beside me, Joby said, "I think we're safe for the moment."

"Won't the Buster follow us?"

"I don't think he can get out."

I didn't want to bet my life on it, so I struggled to my knees and crawled back to the lip of the rise. Peeking over I expected to die, thought for sure a blast of energy would part my hair. But it didn't. The Buster stood near his side of the fence, mumbling to himself.

I crawled back to Joby. "You're right, I guess, but I bet he's calling for help."

"Let's go," Joby said.

We went, back the way we'd come. More or less. We veered east, away from the sun, because the terrain was easier to move through. Far away, through the green mists of Deathwish, the mountains grew from the ground, a gentle swell at first, then with sides steep as walls, quartz cliffs of rose that threw back the light in a red glow. I looked away, wondering what it would be like to climb those cliffs, to dangle from a rope and look down on a world I'd only seen from the interior of a mining camp. My entire life had been spent in a 10 klick area, a good part of it beneath ground.

Joby tugged at my hand and I looked back toward the mountains. The rose-hue of the quartz cliffs had disappeared in swirling clouds of green.

"What's going on?" I asked.

"Storm," he said. "Big one."

Ahead the air had taken on a new, deeper color, the green ganging up on the yellow, deepening to a color like the seas of Deathwish, which I'd never seen except in pictures. A pinwheel on its side, the storm reached from the ground to a point high above the highest mountain peak, turning like a drill rotor. The earth beneath it kicked high, a hundred meters of green dust that flooded the darkening sky.

I was lost in my stare, my gaze riding along the storm's rim like an eye distended and separated from its fleshy connections

# Morning Star

Time stood still, except for the storm's turning. I stopped breathing. Stopped blinking. Stopped living, except in the intensity of the storm. It was a rapture, as though something had stolen my soul. Time passed outside of me.

Joby screamed in my ear and broke the spell.

The storm had sucked the air from around us and his scream sounded like a whisper. "Look left, look left, look left," it echoed in my ear.

At first all I could see were the edges of the green pinwheel as it ate its way along the ground. But then, squinting my eyes, I noticed moving dots in front of the storm. Teardrop shaped.

The Ancestors were searching for their slaves.

"The ditch!" Joby whisper-screamed. "Over there."

It was difficult to breathe and our chests sucked hard, the heavy packs suddenly tripling in weight. My feet wouldn't work right, stuck, as if the dust had turned to thick mud and was trying to suck me under. Joby went to his knees and I had to fight to stay up. I grabbed his elbow and pulled, he staggered back to his feet.

Our entire world was a green maelstrom of spinning air. The pinwheel came toward us at unbelievable speed, a green galaxy set on its side, spinning and eating its way across the surface of Deathwish like a supernatural thing, a god come to avenge the wrongness of our lifetimes. We should have stayed and worked, I thought, like a prayer offered to the storm. We'd still be alive then.

Guilt, fear, and the feel of death in my bones clawed my insides as we reached the ditch. The feelings ate away at my resolve. Another few feet, I would have stopped dragging Joby, would have lain down and let it take me where it would. I pushed Joby first, letting myself fall behind him. The ditch was deep, two meters of cut earth that had sides as steep as the quartz mountains, and headfirst we plunged into its depths. Beneath the lip of the ditch the sound of the world immediately returned, I felt the whoosh of air blow my hair, the smell of damp earth, chlorine, and ammonia, such a sweet smell, filled my nostrils. Even though it hurt when we hit, whumping the air from my lungs, a leg twisting beneath me into Joby's back—even so, it was like coming home—

—like the time years ago, when we were still children in the mines. Joby and I crawled through quartz-lined tunnels with carbon steel brackets to stay the tons and tons of rock and metal over our small bodies. We carried and dug with small portable autopicks, loading the monorail that ran back to the surface. The mine deepened through the years, level after level, kilometer after kilometer into the bowels of Deathwise. I sometimes wondered if that's how it had originally gotten its name, from slave miners like Joby, Dolphin, Tingle, and myself. As we grew larger, year by year, the tunnel walls grew closer, the fatigue from 12 hour shifts seething in our bones like quickmix concrete, and we began to have strange hallucinations.

Deathwishes. One of us would start to see the walls move up and down, start to shriek and moan, finally freezing up until one of the others could drag us to the surface and safety.

Long before our full growth many of the tunnels turned unstable. The brackets sagged near the center, where the pressure was greatest, oozing quartz down on our heads like fine rain. We may have been genetically spliced to breathe methane, chorine, and ammonia, but silicon was beyond even the capacity of genetically altered lungs. Joby took sick, coughing blood, while Tingle and I dragged him to the junction, coughing badly ourselves from the deep seepage. We barely made it out.

From then on, Joby, Tingle and I worked the surface mines.

Something crunched through my senses, like a buttress crumpling in the deep mine. Metal folding—it was a sound I knew. Then the storm roared over our heads, weaving a green coverlet on top of the ditch. For a second, I was afraid it would suck the very atmosphere from our space, drown us in its vacuum. Perhaps the storm would suck us up with the bottom tendrils and whip us across the landscape of Deathwise, then dash us on a distant shore. Maybe I'd see the sea that way, maybe the sea would carry us to far shores where deep green waters lapped against sodden stone. I held the image close, tight against my shut eyelids, praying to a god I'd never known except on microdisk, a god I would never believe in.

The storm passed.

Silence.

Silence like death, like the Buster we'd left on the turret of the Crawler.

Like Joby? He hadn't moved in so long, I thought he must be dead. I'd done most of this for him and I didn't think there would be much left for me if he died. But Joby moved then, untucked his head from his chest and looked over at me. "You stepped on my spine," he said.

"Should'a left you out there in the storm. Didn't know you'd complain."

He dropped his pack and crawled to the lip of the ditch, peering over the edge through his hands. His low whistle came back like a wavering feathered song, low and anticipatory.

"What?"

"You have to see this."

I dumped my packs, then changed my mind and tossed them one at a time up over the edge. I did the same with Joby's. Then I clawed my way up, digging my long fingers into the soft dirt. My head popped up next to Joby's, to see—dust, more yellow now, tinged with rose quartz, and a ship? One of the teardrops had smashed into the ground.

"Must have blown their buffer shields," Joby muttered.

"The storm blew 'em down, you mean."

"Yes. Let's check it out."

"Whoa," I said. "What if there's a Buster in there?"

"They wouldn't leave one in an intact ship like that. Parts, remember?"

We crawled out and replaced our packs and trudged across the landscape. The ground was scoured clean of large rocks; even the tough blue cactus that grew in warm season had uprooted and blown away. A desert now, with an alien teardrop settled upon its clean ground. Joby pointed behind us. The backside of the storm sideslipped across the plain, tattered scrub and stone proliferating its edges. There was an eye near the center, a big black gouge where the wind rotated round and round. I could almost see through it to heaven, could almost imagine falling through and up and out to the Ancestor's planet Earth. But there were no more teardrop ships in the storm's edges. The rest had made it out. Nervously I scanned the green sky. High yellow clouds were returning, sulfurous and beautiful.

Joby was wrong about the parts. In fact, the ship still had its pilot and a companion Buster at the helm. Before he passed out, the pilot had managed to open the outer hatch. Stupid, with all the dust that was kicked up in the air. His filter had clogged and he'd passed out from a lack of oxygen. He wasn't wearing a flimsy, just a suit with funny patches on the shoulders: a planet with a large moon. Corrosion burns dotted his exposed skin, raw patches that would soon become ulcerous in his soft skin. I couldn't help but touch him. His skin was

# Absolute Magnitude MSFA

soft as a clear night, the color of Deathwish quartz in one of the mines, one of the rosy quartz pieces that lay far below the surface. Our skin was so hard and scaly. His hands had shorter fingers, where ours were long and skinny. His hair, even on his arms, was downy and soft, too, a color like a desert in sunlight. Ours was nearly white. The differences fascinated me. But the Buster was busted. He must have been standing when they crashed, his face was smashed clear back through his titanium skull. His red eyes no longer glowed with life.

I stepped past him.

"Too bad we can't fly this thing," I said.

"We can." Joby played with the filter pieces that fit in the pilot's mask. He shook them out against a bulkhead and quickly replaced them. "If he lives."

Joby pounded the pilot on the back until he coughed. As he came around, Joby passed me a filter mask from his pack, showing me how to put it over my head. I breathed clean chlorine and ammonia and sighed. Joby's voice was muffled through the filter as he said, "I have to close the hatch or he'll still die from the skin contact." It made me wonder what would happen when the oxygen hit my skin, but I didn't say anything. The hatch winched. As it closed, interior lights gleamed from the panels. The pilot opened his eyes and stared. How round his eyes! How dark. "What's this—" then he shut up.

Joby held a hand laser to his head. "We're going to the station."

The pilot nodded his head. "But it's stupid. There are a lot of people up there."

"Go," Joby said. "Just shut up and go."

The ship whined and lifted.

But the pilot didn't give up that easily. As the ship went through the atmosphere of Deathwise, the buffeting knocked Joby off his feet and back into the bulkhead. The laser slithered across the floor, I picked it up, fighting the desire to pin myself to the back wall of the ship's cabin. I pointed the laser at the back of the pilot's skull. "Don't do anything else. I'd just as soon melt your skull as not." Though a lie, it must have sounded good, for he eased the ship's made race through the atmosphere.

Joby moaned.

"You okay, Joby?"

He rattled his head back and forth, as though it were loose on his neck. "Think so," he said. He managed to flip himself to his knees and crawl over to me. He took the laser.

"No more of that," he told the pilot. "I can fly this thing if I have to." The threat hung heavy in the cabin's alien air. "Sure," the pilot said. "I don't want to die that badly." And he didn't, I guess, because we approached without further trouble. He used the comlink and announced his docking procedure. I stood by the large port and watched in awe as the station appeared above us in the black that lay over Deathwise. I hadn't realized how huge and black real space was. I'd seen holos in the library, but they were only half as impressive as the real thing. Space had texture, I realized, like a soft, heavy blanket. Minute yet strong electrical fields tugged at my senses, while the colors of blazing lights dazzled my brain. Deathwise was a place of greens, yellows, and grays. I found the twin moons and marveled at the barrenness—gray surfaces marred by craters and rifts. Within one huge crack on the larger moon, a domed factory sat squat and ugly, although majestic among the ruins of battered rock and ice around it.

"What's that?" I asked.

The pilot glanced out the port and smiled. "Refinery for the ore from the surface. We load the mother ships there." The

place looked dead, as though it had died from disuse. Nothing moved, most of the buildings were decaying into the surface of the moon. I wanted to ask more, but the station suddenly loomed, filling the black above us.

It was a huge construct, a circular wheel built about a giant sphere. I wondered how Joby hoped to conquer such a thing. There must be thousands of people aboard and we didn't even know our way around.

"Joby?"

He held the weapon steady but looked over at me.

"What are we doing here?"

"Starting a revolution," he said. "One way or the other." His eyes blazed like the stars outside the port. Our strike had grown in his mind, it seemed. Now it was a full-blown revolution. I loved Joby, but I didn't want to die for this. The words bounced around in my mind like traitors and I was glad I hadn't said them out loud.

The pilot docked, saying nothing after he received the OK. He didn't seem worried, and I didn't blame him. I only hoped Joby had a plan.

Joby told the pilot, "Take it to the far end of the docking bay." Now the pilot looked worried.

"I don't know if I can," he said.

Joby hit him with the barrel, a sharp glancing blow across the skull. I jumped back at the sudden violence, anxiety digging a burrow in the pit of my stomach. Joby dragged the pilot from the chair and took his place.

I stared out the port. We crawled down a long tunnel, steel girders rising high above us. The radio whispered, "Shuttle 6, where are you docking?"

Joby flipped the mike open. "Far end maintenance," he said. It dawned on me then that Joby had read about the interior of the station. He knew what he was doing, which made one of us. "Check, Shuttle 6. Everything is down except for the end docking bays. We're sending you to mechanic's row."

Except for a high whine, it was silent. We moved slowly, past other shuttles of similar design. A few larger freighters were parked at an angle to our passing. All seemed to be in pieces, as though they were still building them. Or maybe, I realized, this was the only way they could keep a few going, by cannibalizing the rest. Joby had taught me that about the Ancestors, if nothing else. Occasionally, I saw a mech who was working, but their numbers were few.

When we stopped, Joby said, "Tie and gag him with whatever you can find."

I found a utility box with strong cord and did the job, covering the pilot with a tarp I found over some computer equipment. If anyone looked in, they might miss the lump. They might not, either, but it was the best I could do.

"Now what?"

"Follow me."

"What else?"

"Everything runs in a circle," he whispered over his shoulder. "If I remember the maps right, the central core is 11 levels in."

"That's a long way."

He shrugged, his heavy pack bobbing in my face.

He was going to blow it up. No more bargaining about a strike.

"Joby, I don't know."

He let me catch up with him. "There's another problem," he said, tapping his filter mask. "One more hour and we're out of air."

The thought of choking on the Ancestors' air changed my

## Morning Star

thinking somewhat.

Let him blow it up. They'd never done anything but use us up, wear us down, and bury us in their mines. My attention fell on an interesting feature in the curving hallway. "What is that?"

Joby seemed to concentrate extra hard, as though he could see the diagrams of the station in his mind. He grinned. "Come on," he said.

We crossed the hall and he pushed a button. Part of the wall slid back. He showed me inside. The wall closed and I realized we were enclosed in a small lift.

Joby played with the controls. "Should take us straight to the center, where the power source is."

We moved. It felt like hours passed.

Joby handed me the weapon. "What do I do with this?"

"Just hold it." He busied himself, searching through one of the packs.

A jolt knocked me off balance.

The door whooshed open.

I stared at three Ancestors. Two looked like all the others had, but the third caught my full attention. I forgot the weapon in my hand as I stared at her. Her hair hung long, past her shoulders, and her eyes were large, the same color as mine. It was as though I was looking at a sister lost across millennia of space and time. I wanted to say something important, anything, but she didn't give me the chance before she shot me. Pain, then numbness fled up my arms and legs, my mind quickly clouding over, I felt myself falling out of the elevator toward the hard deck, a million meters away.

I didn't wake all at once. And I didn't dream, though I heard dreamvoices, sounds without pictures. The voices argued fiercely over something I couldn't see. What I could see startled me. I was lying on my back, and above me, through a green mist like the atmosphere of Deathwish, there was a creature who flew. Except it wasn't moving. Someone had plastered the creature to the wall like a three dimensional holo frozen in time and space. The creature had huge white wings, a strange light painted about its head, and a beatific smile that beamed down upon smaller creatures with four legs and kinky white fur. I recognized the four legged animals. Joby's sheep. I'd always wondered what a sheep really did—why Joby always used that word so fondly when arguing with the others. These chomped short weeds in a pasture below blue skies and white clouds which puffed and blew impossibly, for there was no wind.

I turned my head toward the sound of the voices. A slim Buster with only one arm worked in the corner. He seemed to be fixing something in a gas-filled tube. A few feet away, Ancestors stood nose to nose, shouting. One pointed to a huge diagrammatical chart on the wall. "The gene changes match, I checked them!"

The other shook his broad head, white fringes of fuzzy hair hanging about his ears. "You didn't remove enough of the aggression factors." They looked old and haggard. Both had slumped shoulders, the one with the frizzy fringe had to turn his head when the other spoke, as though he couldn't hear him. I focused on the canister.

Something unfinished floated there, between gravity plates. It didn't lie still, that's what bothered me. In the green gas it twisted and twitched, as if in terrible pain. I almost screamed. For the longest of seconds, I was sure it was Joby. But then, slowly, I realized it wasn't even close to a man-shaped form.

I almost gagged at the realization. This is how we were

made.

When I was very young, I had a dream, a recurring vision about my past. I was swimming, sleek and skinned down, limbs like flippers and fins, somehow I absorbed the atmosphere without really breathing. I didn't need food and I was always warm. A euphoric buzz rattled around in my head most of the time, except on rare occasions when a dark feeling would descend to drown my good feelings, an inkblot falling in my ocean, a shark of bad feeling deep within me that I couldn't shake off. I'd huddle then, in my dream, at the bottom of some vast sea, the sudden pressure of tons and tons of water upon me. I'd lie there until the pressure drove me up toward the surface, flailing my fins. I don't have fins! my mind would scream. And I'd wake up.

But the thing in the canister had fins. I realized that as I forgot the dream and stared harder. Its head was sharp like a long projectile, and it was long and slender of body, with fins protruding from its sides. The animal flapped. Horribly, I thought.

One of the Ancestors said, "The pseudodolph will fit nicely into the sea."

He meant the sea on Deathwish.

"Stimulate that area again," the other said.

And the pseudodolph spoke. Rather it whined a high-pitched whistle of pain.

"That's better," the first said.

I closed my eyes. We minded for them, and the dome people farmed for them, and this sea creature—what would she do for them? She was in terrible pain. I don't know how I knew, but I knew—an empathy, perhaps, between creatures with a similar creation. We too had begun this way.

I moved around, my eyes squeezed shut for a moment to clear the images I'd seen. I too was in a type of tank, a clear-walled canister which kept the atmosphere of Deathwish. I pressed my nose to the far wall, to see better. More tanks lined the walls. But all were empty.

No.

At the bottom of one in the center, across the room.

Joby.

He was lying oh so still on the bottom.

Don't be dead, Joby.

But then I saw one leg twit, and he rolled over on his back, he was alive.

Still, I watched his chest for a long time until I was certain it rose and fell.

I moved again and pressed my nose up against the glass wall to see better. One of the Ancestors had left with the slim Buster. the other stood very still, reading something. I studied him. He was tall with fringe of silver hair and light-colored skin, I couldn't help but feel something. He could be a relative. Maybe my very tissue had been taken from this Ancestor's body, the genes in control of sex later changed. It wasn't at all likely, a girl's sillyream, I knew my emotions and my needs were getting the best of me. But I needed a past connected to a civilization. At least I needed more than a mine shaft and a power tool, more than a bleak desert-like planet where they grew food beneath boggies of alien air. I remembered the boy beneath the filly dome, his dark hair and skin. The atmosphere had bleached us colorless, as colorless as the lives we led from dawn to dusk digging out StarBrite's profits.

I wanted me.

Now, we have even less. What would they do with us? Would they send us back to the surface to mine again? Would they have some exotic punishment, some way to pull us apart

# Absolute Magnitude MSFA

and rebuild us? I stared again at the sea creature and wondered what it would be like in the seas of Deathwish, swimming, swimming, always in motion, breathing as you moved, afraid to stop. What service to the masters could you perform?

The man I fantasized as my father came closer. He stared in and I shuddered. "Father, forgive me," I muttered. "Father, forgive yourself." I didn't realize he could hear me.

"For what, child?" he said, approaching my glass wall. I crouched, uncomfortable on my knees, my rumpled jumper torn and hanging from my body. Some daughter I must have seemed. "Why?" I asked. Just the one word.

He sighed, a wise expression on his face. He didn't look that different from us. He had eyes and a nose and ears and a mouth. The mouth moved, finally.

"Supply and demand," he said.

All the meanness and hatred of my lifetime must have been reflected in my face as I stared up at him.

Earth isn't in much better shape than Deathwise," he told me. "You understand?"

I didn't, of course.

He looked old. And tired. And suddenly he looked sad. "The pollution plagues of the early twenty-first century took most of our breathable atmosphere, too. Those left live beneath pressurized domes. You're an experiment, an adjustment, you see? If you work out, we might do it on Earth."

I didn't believe him and my expression must have betrayed me.

He sighed. "No," he said, reading my expression. "The people on Earth would never accept it, you're right. Citizens would rather become cyborgs, slaves to added parts." He looked as disappointed as anyone I'd ever seen. "There are few real humans left," he said. "Except. . ." He looked at me in a strange way. "Maybe you."

He turned away, then, as though confused. Like a creature who had forgotten what he was doing, he returned to his work, putting there, in a less sort of way.

I stood and pushed my face against the glass. It moved with the pressure. I searched the room with my gaze, careful this time to look at everything.

There. In the corner. Popped up on a stool. Our breathing masks and the packs. If they'd left the masks on, then all the gases were gone. But if they hadn't. . .

Was it worth dying to find out? I thought of spending the rest of my life in a canister, my life defined by transparent walls, but walls just the same, and I leaned into the glass with all my weight.

It bulged, then pushed back at me.

The canister rocked a little.

The old Ancestor still pattered across the room, his nose buried in a chart. But Joby must have heard the rocking of my canister, because he moved. Just a twitch at first, then his tousled head lifted from the floor of his canister as he peered carefully around. Our eyes locked, he grinned, rubbing his head.

I started taking deep breaths, drawing more and more precious Deathwise atmosphere into my lungs. And I rocked. I worked up a rhythm, the way I used to on Deathwise when I mined. All my strength, against the wall, then rest, push, rest, push. The canister moved now, with a life of its own, farther and farther with each push, until finally it hung at an angle, and I shoved my hands over my head while I turned my shoulder to the glass. The fall was long and slow, I hit with a shatter.

The pressure, I supposed. The walls held, but the top where I'd placed my hands, popped off with a whoosh of escaping

gases. Tipped over, though, I was now laying down, my shoulder to the glass. My shoulder ached.

But I had my breath. I'd held that.

I scrambled through the opening, clawing at the floor with all fours. I could hear Joby's canister rocking now, too, as he imitated my escape. The old man had turned from his work, and he stared open-mouthed for just a second. I moved forward in a hunched run and hit him with my good shoulder and he flew back, catching his feet in his equipment, finally smashing into the canister which held the pseudodolph. The creature screeched and seemed to claw at him. I turned and straightened and made for the mask in the corner. My chest hurt, and I could see dark splotches in front of my face. My head was growing and soon it would explode.

The mask was clumsy, I had trouble getting it over my face. I fumbled with the knobs, knowing I was going down—I could feel the hard floor beneath me—but then there was a soft hiss and I sucked at the atmosphere of Deathwise.

I panted like I'd run a 10 klick race, while I knelt on the floor and watched Joby press his face up against the glass of his canister. Joby stared across the room, toward the old man, who had gone down hard. But he was a strugger. He'd fought his way back to his hands and knees.

But not to stop me. His primary concern was the canister with the pseudodolph inside. It had fallen and crashed and the liquids now ran across the floor. The old man had shoved the canister upright, cradling it the way a parent might cradle a child, hoping, I thought, to stop the pseudodolph's environment from pouring out. But it was far too late. The creature lay on its side, one fluke fluttering the air. It couldn't breathe—that was obvious.

The Ancestor looked at me sadly.

I heard Joby's canister rattle.

I had the mask settled now, my breathing was almost back to normal.

"You go on," he said. "Both of you. Go on and be human." I unfastened the lid to Joby's canister and he came up talking—and then he must have realized his mistake. He choked and clamped his mouth shut. I handed him the other mask, he pulled it over his face with a sense of desperation in his eyes.

"Ah, shit, that burns," he rasped.

"Shouldn't talk until you're sure what there is to breathe, Job."

Beneath the filter mask, Joby's eyes were hot. Whether with exasperation, anger, or the deadly atmosphere of the station, I couldn't tell. He spun from me and moved to the packs in the corner, quickly rifling through his own.

He turned, smiling. "They've underestimated us," he said. "Didn't even take the explosives." Gleefully, he strapped the pack to his chest, then passed me mine.

The old man cooed to the pseudodolph and ignored us as we walked by.

Outside, the corridor was deserted.

We started trotting down its winding length, searching for doorways that led inward and down. The corridor branched off and we took a turn to the left, toward the hub of the wheel.

Joby seemed to hang back.

"Joby? You all right?"

He walked slowly, staring up at the steel connecting beams that ran near the ceiling. Dust was layered there, stirred, I guessed, by our heavy tread. It rose a little, into the station's air, floating like tiny worldlets. In one corner there was some type of lifeform. It skittered away on stretchy strands as we passed.

# Morning Star

"This is even worse than I expected," Joby said from behind me.

I shrugged. "It's old. It's been here for generations."

Joby shook his head. "Maintenance has gone to hell." He looked sad, I thought, as though his expectations had been trampled on.

The corridor stretched out in a gently curving line. On and on. One section had ports. We stopped to look out. A billion stars looked back in. Below, in reflected light, the large moon looked gray and eerily dead. The station was close enough that I could make out the larger buildings on the moon's surface. Corroding? Falling in upon themselves? Did they too have storms, as Deathwish sometimes did? Did the stones of Heaven pounce upon the moon's dried up shores?

We walked on.

Or rather I did. I'd gone quite a ways before I realized Joby was holding back, leaning against the wall. I waited for him to catch up. He was breathing hard when he finally reached me. "What is it?"

"That breath of their atmosphere —it's seared my lungs." The alarm must have shown on my face, around the filter mask.

"I'll be okay. I just need to rest a moment."

Joby leaned against the wall.

"You go ahead," he said. "Find the way down. What you're looking for is an elevator, like the one we were in earlier." He coughed. "Come back and get me when you find it."

I didn't like it.

As I started to move off, Joby took the pack from his back. He started pulling shaped charges from the pack, fiddling with them.

Would he blow us all up, then?

I moved faster.

I heard him before I saw him. Scraping across the metal floor. A sound like something wounded. And he muttered, "Four by four, guard the door. Two by two, next it will be you." I was approaching an intersection. Across the intersecting hallways, there was more light. And an elevator, another box-like room that moved. A Buster guarded it.

One of his legs wouldn't work right. He dragged it across the floor in front of the elevator. The foot was skewed sideways, twisted at a funny angle, and the steel on steel made a wrenching sound. Like something in agony.

Busters were the symbols of authority. I had always been frightened of them. And still, this Buster looked pathetic. Like an old miner who had lost his ability to use an autopick. Was he still dangerous? He didn't look dangerous.

"One hour," Joby said. "One hour of precious Deathwish atmosphere to breathe." And Joby hanging back, dulled by the breath of oxy he had taken. How many choices did I have time to make? How many detours could we afford to take to avoid Busters? I made my choice.

I took a deep breath.

And walked up to the busted Buster.

Four by four to guard the door," he muttered.

Will this take me to the hub?" I asked.

Two by two to—" He looked up, confused. "To the hub, Ms? To the hub? Of course to the hub. All roads in the wheel lead eventually to the hub."

In case he proved dangerous, I was hugging the wall, keeping a good meter between us. I knew I could outrun him, and he didn't seem to be armed, unless he had a laser built in.

He drew himself up very straight as he studied me, almost a position of attention.

"You certainly favor the new Mistress," he said.

"I do?" I said, faking it.

"Yes, the hair, especially. So long and light in color." But he kept staring at the filter mask, uneasy with it. "May I ask, has the air gotten so bad again?"

I nodded, afraid to speak.

"A pity," he said. "Why, I can remember when this station was tip top. Warm as summer all year long. Clean air." He shook his massive metal head. He looked down then and seemed to contemplate his battered leg. "Do you suppose I can get this repaired? I put in my requisition, but no one ever came."

"You need a good mechanic," I said.

He looked at me seriously. "Do you know one?"

"It just so happens," I said, turning to look back, wondering how far behind me Joby had fallen. "Can you wait?"

His eyes twinkled. "I'm good at waiting, Ms."

I turned and tried to walk fast without running. I found Joby walking beside the wall, around the bend in the corridor. He looked even paler than usual, he was a little breathless. "Where were you? I was worried."

"Joby, I've found a way to the hub."

"Good," he said. "He'd arranged his pack so it rode on his chest, the first charges poking from its opening.

"But—"

"But what?"

"You have to fix an old Buster."

"What!"

I took his arm and tugged him along. "It'll be okay, trust me."

"But a Buster. He'll sound the alarm; he'll arrest us!"

"I don't think so. Come on."

When we reached the elevator, the Buster didn't flinch. He was deep into his song again, "Two by two we guard the door." He stopped singing when he saw us approach.

"Joby can fix your leg. Can't you, Joby?"

Joby looked angry, ready to jump the old mech, and I jammed an elbow into his side.

"Can't you, Joby, if he takes us to the hub."

"Uh, yeah, probably. I've got some tools in the pack."

"On the way down," I said. "Can you leave your post?"

The moment was full of tension, but I swear the old Buster's eyes twinkled even harder. He was like some rueful old miner who had figured out a way to beat a bad system. "No sense in guarding an empty shaft," he said. "Besides." He looked away for a moment. When he looked back, there was decision in his amber eyes. "I think it's time we changed the guard." He seemed to relax. "They call me Betelgeuse."

"Bingo," I said, holding out a hand.

Betelgeuse took it carefully.

"And this is Joby."

Joby just snorted and said: "Let me see that leg." He bent down in front of the old mech, pulling tools from the big pack. "That's so much better," Betelgeuse said, flexing his leg as we headed down in the elevator. "Wonderful feeling to have normal movement again. I can't thank you enough."

Joby had relaxed a little. He slumped against the elevator wall, still sullen but better. "You know who we are?" he asked.

"Why, the new guard," he said. "Isn't that right?"

Joby nodded.

"But even the new guard needs allies, don't they? Especially allies with a knowledge of the old guard?"

"I'm going to blow it up," Joby said, a hard edge in his voice.

Betelgeuse didn't even flinch. "Ah well. It's old, anyway.

# Absolute Magnitude MSFA

Maybe a completely new start would be better. I say, though. Would you have a place for an old hand in your new regime?"

"Of course we would," I said.

Joby didn't look so certain.

"Joby, we need help. We're lost up here."

"I don't trust Busters," Joby said.

I spun to face him. "You have to trust someone. Sooner or later, it comes to that. This is later, Joby. We're almost out of time."

He stared across at Betelgeuse.

Betelgeuse said, "Corrosive atmosphere bothers me not. And I don't eat much, besides a regular volt of electricity now and again. And I'm trained in repulsor fences and hydroponics. I haven't always been a simple guard. You may have need for someone like myself?"

"Yes," I said, glaring at Joby.

"All right," Joby said. "But I give the orders."

I'd have stuck my tongue out at him if I could have, if the filter mask hadn't prevented it. Or given him the raspberries. As it was, Betelgeuse just bowed, a nifty little move from his metallic center.

"At your service," he said. But he said it to me, not to Joby.

Joby scowled, but it was all right. Joby always scowled at interference in his plans.

We dropped faster then, it seemed, the blood rushing to my head.

Finally we stopped.

The doors opened.

A few meters down the hall, two Busters stood almost shoulder to shoulder. They looked healthier than Betelgeuse, and they scowled.

"Let me handle this," Betelgeuse said, stepping back, clamping a steel hand on Joby's arm. I walked out first.

"We need to pass," Betelgeuse said.

"By whose order?"

"My mistress is the granddaughter of Ophilia, the great mother Ancestor of us all."

"The new administrator?" They peered at me more closely. Then they looked at each other. Then they saw Joby.

"And what of him?" they said.

"Our prisoner," Betelgeuse told them. "We're taking him to the main brig."

Electric tensions sparked between the Busters, but then they yielded, letting us pass. They stood at attention as I passed. I tried to stick my nose in the air, filter mask and all, though my heart bumped my ribs with a clatter. My mind reeled with a strange kind of pride. I favored the new Mistress, the new administrator. Then I remembered the doors opening on the elevator the first time. The lovely woman that stood there. The lovely woman who had shot me with a stunner.

Pride faded and anger flared.

But then, we'd gotten lucky. We were on our way. We were— A sound like thunder on Deathwish filled my ears. Like one, the three of us spun. The two Busters pounded toward us, their eyes blazing red. One had his blaster leveled on Joby.

It must have come from his right hand, a built-in, because suddenly the Buster aiming at Joby was lifted from the floor. There was a great flash of light, and a flailing of arms, and then the Buster next to the first came apart, his head ripping away at the joints as he fell.

I looked over at Betelgeuse. His right hand smoked, and he had a metal grin across his big face. "I can still cut it," he said. "When I have to."

Joby's eyes behind the filter mask were large with fright and with something new. Respect.

"Now what?" I asked. Obviously someone had found the old man and the pseudodolph and our empty canisters.

"Follow me," Betelgeuse said, and he led us down a narrow access corridor that was dark and littered and little used. In the dark, he fumbled along the wall with one hand. "Here," he said.

He pulled a grid from the wall. It clanged loudly on the floor.

"In and to your right," he said, lifting me easily through the opening. Then he gave Joby a hand to stand in, Joby crawled through. I moved farther down the narrow tunnel.

"What about you?" I called back.

"Right behind you," he said, though he didn't seem to be. The access tunnel was a meter square. Too low to hunch and run, but we could move well enough on all fours. I could hear Joby scraping along behind me.

"Always go left," Betelgeuse's voice called from behind us. "If you lose me, go on without stopping."

I hit the first intersection and bore left. How many years had I spent as a child crawling through mine shafts? Those were damp and smelled of minerals, but often the shafts were as small or smaller than this.

I stopped once to listen for the others. Joby still scraped along behind me, I couldn't hear Betelgeuse.

I turned left again.

I was blind half the time, though I felt like we were going down. Deceptive to move in the dark. Hard to tell directions or ups and downs until your muscles pulled and told you which way you were going. Then suddenly, from somewhere, a shaft of light filtered through. After the darkness, it almost blinded me. I sneaked up on the bright shaft of light, knowing it was another intersection.

"That's what I want!" Joby's voice called from behind me.

I hugged the wall as Joby squeezed past me. For just a second I thought we were going to stick together like Deathwish rock-links. Stick together and suffocate one another, but then he moved on past me.

"This is it. I remember it from the diagrams." I crept up beside him. The intersection was a meeting of cross tunnels, a bit wider near the lip, and Joby hunkered over the edge near the center.

"What is it?" I said, picking up the excitement from his voice.

"A toxic gas vent, in case of accident with their main reactor core." He was busily removing charges from the pack now, then hooking timers to them.

"Joby, you'll kill us!"

"No. We'll have five minutes to clear the station."

"But that's—That's nothing. What if we get stopped?"

"We'll have to risk it. I set these for any longer and they might find and disarm them."

He started dropping the charges down the hole filled with light. One, two, three. I stopped counting.

We scrambled then, Joby in front now, banging our knees and elbows and heads on the steel walls as we ran.

We turned left.

Then left again.

Then Joby stopped.

I ran into his flanks and half knocked my mask off. "Dammit, yell before you stop."

But Joby was turning in the tunnel, sitting with his back to one wall.

# Morning Star

"Right in here. Somewhere. You see any light?"  
"Down farther, a few meters down."

We scooched.

Light filtered through a grill.

Joby set his back again and kicked hard. Twice. On the second kick, the grill clattered to the floor below.

We crawled out.

"The shuttle bay is just around the corner," he said.

I stuck my head back in the access vent.

"What are you doing?"

"Looking for Betelgeuse."

"We don't have time." He grabbed my arm, pulling me down the corridor through a big bay door. Up ahead I could see the shuttle bay, or a part of it. Only two shuttles were docked, and neither of those was the one we'd arrived in.

Joby started to cycle the hatch on the larger of the two, swearing when he got the numbers wrong. "Come on, come on," he muttered.

I watched his fingers fly.

"You can stop that now," a voice said.

We both turned to look. They'd come from behind the other shuttle. Two Busters with hands raised, their built-in lasers like a sixth finger. The real Mistress Ophilia stood regal and tall in front of them. She held a nasty looking little weapon in her right hand.

We did look alike, I thought. Except her skin was soft and porous. Human skin? Mine was crusty and bleached. But our features were enough alike to fool a stranger. And we both had long, white hair.

"Take them," Ophilia said.

The Busters stepped forward. A bolt like lightning erupted in the center of one's back. He went down screaming. The other turned. Both he and Betelgeuse fired at the same instant. The Buster went down to his knees, and Betelgeuse spun and clanked to the floor.

Joby had moved too. He grappled with Ophilia.

I ran past and knelt by Betelgeuse.

"How bad?" I asked.

He grinned his steel grin. "Four by four we'll guard the door no more," he said.

"Oh yes you will." I grabbed his arm and started dragging him across the bay floor.

Joby and Ophilia were doing a dance.

Apart.

Then very close together.

Then the hand laser clattered to the floor. Joby kicked it away. They stood facing each other.

"I'm the new administration," Ophilia said proudly. "And this isn't finished."

She turned and walked away. Rather regally, I thought. "Quickly," Joby said. His voice quavered a bit.

"Help me get him on board."

Joby stared at me as though I were crazy.

"We don't have time."

"Make time!"

We drug him aboard.

Joby jumped for the pilot's seat and hit the console buttons. We screamed down the tarmac and out the bay door toward the surface of Deathwish.

Halfway home, Joby pulled me to him and cradled my face against his chest. It wasn't romance, as I first thought, but safety. The glare of the fusion explosion was too much even for the safety ports on the shuttle. I'll bet the Busters, the miners, and farmers left on Deathwish watched it, though. I'll bet they saw the birth of that steel star that still burns in our sky in the early mornings.

The station still glows in the black velvet above the sky of Deathwish. A month has passed Dolphin, Tingle, and the others are coming around. Hunger will do that, I've found. Joby made a deal with the other complex. They grow food and we maintain their dome. They were disbelieving at first. Waiting, I suppose, for guidance from the station. When no one came after a week, they reconsidered and talked to us. Our Buster, Betelgeuse, to theirs. Us to them. They breathe funny air, but they're not that different in their minds. Like needs can overcome a lot of problems.

One of my needs has been met. Our stolen shuttle was well equipped with medical gear, including a gene-splicer from the station. New life now stirs in my belly. I guess I got my wish on the morning star.

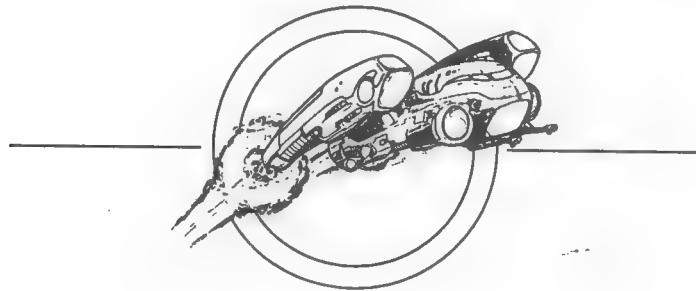
Joby takes my hand as we walk.

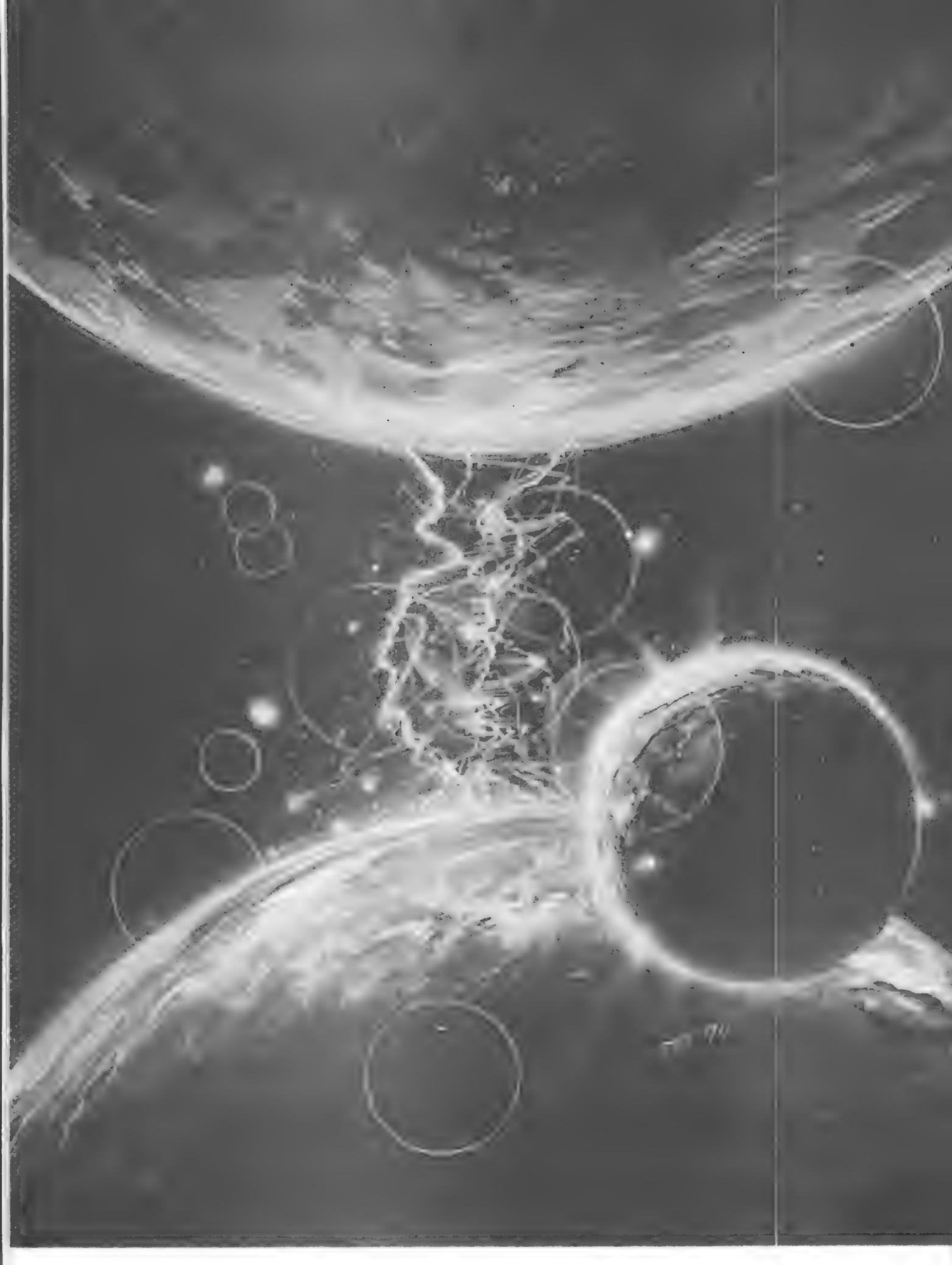
I wonder, sometimes, if Ophilia escaped?

I look up at the morning star. "They'll come back, won't they? Come from Earth to get us?"

"Maybe," Joby says. "If they think the profit is worth it." He puts his arm around my waist. "We'll be ready for them." I squeeze him back. "Will we? Will we, really?"

"Come on," he says. "We have work to do."





F. Gwynplaine MacIntyre was born in Scotland and raised in the Australian outback. He currently lives in London and New York City. His short fiction has appeared in several major SF magazines. His most recent science fiction novel is *The Woman Between the Worlds*, a Dell trade paperback. His forthcoming SF novel is *The Lesbian Man*.

# THE MINDS WHO JUMPED

by  
F. Gwynplaine MacIntyre

Copyright © 1994

The barmaid had changed sex three times that year, traded bodies bi-monthly, and she'd hocked her memories and bartered her thoughts so often that she couldn't remember her own birth-shape anymore. She believed that her name was Jen, and that she was originally female, human, and Earthborn, but of course there was no way she could know. The memories inside Jen's head might be *hers*, or they might be someone else's bootleg memories that Jen had picked up cheap on some back-alley planet. It was also possible that they were *nobody's* memories: they could have been scripted in a computer, on any of three hundred planets, and then the counterfeit memories were downloaded into Jen's head. Of course, it wasn't Jen's *real* head.

Jen had lost track of her original body. She vaguely remembered being blue-eyed, red-haired, and freckled at some yesterpoint in her life, but that was all. When she'd sold or bartered her original head, she had sold all its contents . . . including her memories. Her mental image of her original self—blue-eyed and freckled—might not be one of Jen's own rememberings. It could have been a remnant bit of a rememory that was left inside Jen's latest brain by the brain's previous occupant.

Jen was wearing a hyde, like everybody else in the bar. The Jumpjoint was crowded with visitors from a dozen different worlds, but there wasn't a single real *body* in the whole room. There wasn't a cubic centimeter of flesh nor a smear's worth of body fluids anywhere between the jukebox and the airlock. They all wore hydes. Jen's hyde was encased in bright pink syntheskin, molded into the contours of an adult female humanoid with tendersex genderspex. Most of the Jumpjoint customers were wearing neuter hydes without gender options. Either they couldn't afford anything better, or they were just passing through on a Jump to some other planet and didn't feel like paying extra for gonads. Jen was here on Venator to *work*, so her hyde didn't come with eat-options or sleep-options. Her plastic body stayed awake 27 hours a day, nine days a week, without meal breaks or downtime.

There were four conflicting memory tracks elbowing each other inside of Jen's head—inside her hyde-head, that is—and so she remembered four different explanations for why the cyberbodies worn in interstellar space were known as "hydes". Reason One: the hydes were invented by someone named Hyde. Reason Two: "hyde" was short for hydraulics, because the cybernetic bodies had hydraulic servolimbs. Reason Three: after you Jump out of your original skin, you trade your hide for a hyde. Reason Four: when you've lost your own body you still need somewhere to hide, so you hide in a hyde. Maybe all four versions were true. Jen didn't know.

The Jumpjoint relied on the nearby Jumpshack for its customers. Most of the hydes in the joint lacked eat-options or pleasure modems, so the bar wasn't selling much food or drink or smoke. The hydes were loitering between Jumps, flipping spare jingle into the jukebox and tasting various rememories. One selection in the jukebox—B-17, a memory of committing murder—was very popular; several customers had played the

rememory four or five times and were reliving it in greater detail every time. Kill-memories were popular fare hereabouts.

The Jumpjoint was on Venator, the fifth planet of Beta Delphini, a white star 109 light-years (and change) away from Earth. Most of the hydes in the bar looked like Delfs: their cyberbodies were built to resemble the Beta Delphini system's native humanoids. The minds inside the Delf-shaped hydes probably weren't real Delfs, because if they'd been born in this neck of the galaxy they would probably be wearing their own bodies.

Just a 5.769-light-year Jump away from Venator's white sun is Gamma Delphini, the most beautiful double star in known space. Gazing out the window of the Jumpjoint at the sky overhead, Jen had a fine view of the binary star; two suns within a single gravity well, orbiting each other in eternal cosmic foreplay. Gamma Delphini A is a yellow-white spheroid, and Gamma Delphini B is a golden egg-shaped sun, balanced precisely between yellow and orange. Two stars like joined lovers, forever. Gamma Delphini A has no planets, but the golden sun Gamma Delf B was encircled by a dozen Biomes. Some day, if Jen could save up enough jingle to leave Venator, she hoped to visit the crystal Biomes of Gamma Delphini.

A man made out of metal flesh was drinking graphite juice. The customer at the end of Jen's bar was inhabiting a male-shaped hyde, which meant that the mind inside his cyberskull was either male-born or a female spending a genderstint in male shape. He was called Doctor Johnny, and his hyde was more detailed than most of the other synthetic bodies on Venator because Doctor Johnny worked for the Sector Council and his body was paid for with taxpayers' jingle. Jen was sweet on Doctor Johnny. He'd visited every planet in the Delphinus sector, and he always came back to Jen's bar with tales of the places he'd been and the memories he'd tasted. The syntheskin that encased his artificial arms felt almost flesh-real whenever Jen touched it with her hydraulic fingertips. Doctor Johnny's plastic throat contained a liquid larynx that made his voice sound almost human. Most hydes on Venator had metal voices, cybersquawks, but Doctor Johnny's electric baritone sounded like it almost had flesh in it. Sometimes, when Jen closed her plastic eyelids and just listened to his voice, she could convince herself that Doctor Johnny was really standing there beside her, in a body made of flesh.

Doctor Johnny's torso was government property. It was rigged with eat-options so he could keep his internal servos lubricated, and now Jen watched as Doctor Johnny drank the carbon cola that kept his innards moist. Then he flashed his sweet silicon smile. "Gotta get back to work, Jen," he said in that almost-flesh voice. "Expecting that new cargo down at the Jumpshack. Tell you all about it tomorrow." Then he winked, which was something to see because most of the hydes on Venator were built with unwinkable eyes. A second later, Doctor Johnny was gone.

The door opened and in came a man made of meat. Human flesh. His body was alive, flesh and blood, so Jen knew he had

# Absolute Magnitude MSFA

to be someone damn-sure important, and he was probably jingle-rich. Most travelers couldn't afford to bring their bodies along on interstellar trips; it wasn't cost-effective or energy-efficient. Much cheaper and easier to travel by Jump: leave your own body behind, and have a new body waiting for you at the far end of the journey. Some of the more expensive hydes came with counterfeit flesh, but Jen could always tell the fakes from the genuine fleshers. The people wearing artificial flesh didn't sweat, for one thing.

The meat-faced man swaggered up to the bar, and now Jen knew that his body was genuine flesh, in all its sweating stinking glory. Her Hyde contained olfactory sensors, so she could get a whiff of the stranger. He wore a neon-colored suit. The man who was flesh had a spreadchuckle smirk on his face. He parked his butt on a barstool and flipped Jen a wink: "My name's Starbuck. Got anything to eat here?"

From underneath the bar came limping Quarrel. Quarrel's body limped because his portside leg had a hydraulic leak. Quarrel was the Jumpoint's manager. He was big and ugly, with brutal servolimbs in case any customers got nasty. Jen didn't know whose mind was actually encased inside Quarrel's cyberskull; it was possible that the person who called himself "Quarrel" might really be several different minds taking turns in the same body, because Jen had noticed that her boss's moods kept in synch with Venator's nine-day cycle. Quarrel was friendly on Mondays and Thursdays but he was gruff on Tuesdays and Pluterdays. Today was Wednesday, so Quarrel was just plain *mad*.

Quarrel grunted at the fleshers who called himself Starbuck. "You want food? Pay in advance."

The stranger reached into a Moebius pocket in his tesseract vest, and he flipped a gold ingot onto the counter.

Quarrel sneered. "You must think I'm a skeeve, mister. We've got matter replicators on this world. Gold is cheap as dirt. We use diamonds for doorknobs."

Starbuck's cocky grin disenchuckled itself. "But I thought that Venator uses a matter-based currency."

"Yeah, we do. Give me something with a complex atomic structure that can't be replicated. A seashell, maybe, or a freeze-dried human fetus."

Starbuck's grin broadened. "So your currency is based on artifacts?" He reached down and picked up his suitcase: a Mandelbrot satchel that was bigger on the inside than it was on the outside. He took something out of the satchel and set it down on the bar. "Ever see one of these?"

It was a little model car. To Jen it looked like a cheap plastic mass-produced toy, with no intrinsic worth. Still, the plaything had a slight value here on Venator, because of the tremendous amount of energy that must have been expended to transport those few grams of plastic across the interstellar void at faster-than-light speed. But now that the toy car was *here*, on Venator, Quarrel could key its specs into any replicator, dump in a kilo of raw carbon molecules, and churn out a hundred little toy cars just like it.

Quarrel's artificial face remain impassive as he examined the toy. Then suddenly his Hyde-eyes widened, and his Hyde-lips let out a whistle of astonishment. "Take a look at *this*, Jen."

The barmaid looked. The toy car was unique. It had started as a mass-produced plastic kit, but the pieces had been hand-assembled, and there were glue-smeared fingerprints on the plastic where somebody—some child of flesh, born long ago—had carefully and lovingly built this model, piece by piece. The imperfections enhanced the value of the artifact, because the flaws complicated the toy's molecular structure;

they *uniqued* it. Hand-made artifacts couldn't be copied cheaply; a matter replicator would churn out quasi-copies with all the flaws smoothed out, or else the replicator would use up an unholy amount of energy making duplicates that weren't cost-effective.

Quarrel put the toy car down carefully, almost in awe. "Okay, mister. Trade you one meal, even up, for this car."

Starbuck shook his flesh-born head. "Guess you don't know what I'm selling, friend." He took a small crystal out of his pocket. Jen the barmaid recognized it as a biochip, like the biochips that powered the jukebox at the far end of the room.

The fleshers named Starbuck plunked the crystal onto the bar. With a high and distant *thrum*, the crystal began to vibrate. Jen reached out with both her Hyde-hands, and one of her synthetic fingers touched the trembling crystal. Instantly, she *remembered*. There was a rememory stored within the crystal biochip, and now it slipped gently into Jen's mind.

As Jen glanced at the plastic toy car, suddenly *she remembered building it*. She savored the pleasure of fitting the pieces together, the sheer sweet joy of creation recalled as she lovingly painted the model and affixed the decals. She remembered the smell of the glue, the click of polyplastic pieces snapping into place. It was a cheap toy, but *she* had crafted it, and . . .

The crystal stopped vibrating. Quarrel had touched it too, with his own thick Hyde-fingers, and he had shared the rememory. Again he whistled. "A genuine artifact, *plus* the original craft-memory that goes with it? That's a rare commodity here on Venator, mister."

Starbuck's head smirked a wraparound grin. "Tell you how I got it. Knew a lady on Earth with a son nine years old. I taped some electrodes to his scalp, and I recorded all his sensory input and his emotional feedback while he built this model car. How'd I bring it here, you ask, a hundred light-years from Earth to Venator?" Starbuck flipped another wink to Jen the barmaid. "Hell, I've got enough jingle to ship an elephant from here to Prox' Centauri, if I want." He winked at Jen again. The barmaid had never seen a real flesh-and-blood wink before . . . at least, her cyberskull contained no memories of winks. Starbuck's eyelid seemed to dance across his eye. He had a *real* wink, a flesh-wink; more alive than the stuttering hydraulic flickerwink that Doctor Johnny's artificial eyes always made. But Jen still liked Doctor Johnny better than this cocky fleshers-man named Starbuck.

Quarrel grabbed the toy car and the rememory-crystal before Starbuck could change his mind. "How long you staying on Venator?"

"Only two days this trip." There was a ruckus at the far end of the bar as Starbuck spoke; the jukebox was playing a particularly violent rememory, and several customers were crowding in to get a taste of it. "I'll be moving on next Scatterday."

"Fine. We'll give you room and board till then, and finance your next Jump . . . 'long as it's anywhere in the Delphinus system." Quarrel opened a compartment in his torso, stowed the precious toy and crystal within and lurched away, clicking his metal fingers along the bar's menu-monitor. "Treat him right, Jen. I'll be belowdecks."

Starbuck scrolled through the menu and ordered a double glopping of Altairean prognosh, extra spicy. "And keep the beers coming, honey," he said. Jen had trouble keying the sequence for *beer* in the food replicator; it had been a while since any actual bodyflesh capable of drinking alcohol had walked into this bar. While she served the fleshers, she asked:

# The Minds Who Jumped

"Where you headed, mister?"

Starbuck hoisted his beer, faced the window, and drank a toast to the golden egg-shaped star Gamma Delphini B, floating in the sky 5.769 light-years above Venator. "I'm on my way to Gam' Delf B, honey. Gotta get there by Scatterday."

"What for, mister?"

"Tell you, honey. You see how them two Gamma Delfers are so close they're practically kissin'?" As Starbuck spoke, Jen looked out the window. The two components of the binary star Gamma Delphini were indeed much closer together than Jen had ever seen them before. "Happens only once every 7.3 years," Starbuck went on. "I heard it from a tutordisk, scripped by some glitchwipe who didn't have sense enough to cash in on what he knew." Starbuck swigged beer and swiped his hand across his beery mouth; it was a strange sensation for Jen to see actual droplets of moisture on a pair of genuine fleshed lips. The native humanoids on Venator got drunk on methane gas.

"At 1530 hours, come Scatterday," said Starbuck, staring into his beer while he recited the wisdom he'd snatched from a tutordisk, "the two suns Gamma Delphini A and B will attain periastron. That's the binary star's interchange phase. A stellar flare will shoot up from the yellow-white star and kiss the golden sun. The energy transfer means that Gamma Delphini B will gain luminosity, while it sheds stellar mass into Gamma Delf A. Damnedest thng you ever saw. Crystal tides of plasma gas will ripple across Gamma Delphini B. Sunspots and corona and flares, yes, and liquid jasmine flame. Most beautiful sight in the galaxy." Starbuck quaffed the rest of his beer, and then he belched. "So I came here to make some money off it."

This was news to Jen. "You're going to *sell* a stellar flare?"

"Pack it and bottle it for sale to the highest bidder, hon." Starbuck tapped his beer mug, gesturing for Jen to key a refill. "Ain't every day that two halves of a binary star share an orgasm. Gamma Delphini does it only once every 7.3 years. I'll be in a ringside seat above Gamma Dee B when it comes, aboard Biodome Seven; that's the one that achieves periapsis when . . ."

"Periapsis?"

"Closest orbital approach, hon. There's twelve Biodomes orbiting Gamma B, but Number Seven will have the best view when those two orbs of stellar plasma get all hot and bothered." Starbuck smirked. "I'll be front row center with a row of stim-spigots taped to my scalp, recording every precious drop of awe and bliss and beauty that I experience when it happens. You have any idea how much a copy of *that* memory can be sold for at the Prox' Centauri memory-auctions?"

So now Jen knew why this man had come all the way to the Delphinus sector in his own flesh-and-blood body . . . or in someone else's Rent-a-Flesh. Starbuck's body was well-fed; he weighed at least a hundred kilos. He must have paid plenty of jingle for the tremendous quantity of energy needed to accelerate his physical mass through 100-plus light-years from Earth to Venator at hyperlight-speed. Most people who couldn't afford to pay starfare would have come here the easy way, by leaving their bodies back on Earth and traveling in Jumps from one star-system to the next . . . with a different hyde greased up and ready for them at each Jumpshack way-station. But Jen knew that a hyde's cybersensors were incapable of recording a memory in great detail. You needed the sophisticated wetware of a brain—dendrites and neurons and ganglia—in order to get a good recording for a memory crystal. To fully experience the majestic spectacle of Gamma Delphini's stellar kiss, and in order to record the experience and his emotional reactions to it, Starbuck's mind would have to inhabit a flesh-and-blood brain.

The half-life of a dream is sixteen seconds, or the half-remembered savor of a whisper or a kiss. Any short-term sensory pattern on the human brain's cortex—such as a visual image—will diminish by 50% in the first 16 seconds. Half of the remainder fades in the next 16 seconds, and so on. Like radioactive decay, it never quite reaches zero. What remains are the dregs; long-term memory. You recall that the wine tasted sweet, but your mind can never reconstruct the precise flavor. Memories die. That's why Starbuck was rich: he put his dreams into bottles and his memories into cages, and he sold them all to the remember-addicts.

Most of the crowd in the Jumpjoint had run out of jingle by now, and were leaving. Starbuck poured himself another beer, and swaggered over to the jukebox while Jen the barmaid collected the customers' empty bottles and the dregs of methane juleps, to feed into the recycler. Venator's sun Beta Delphini had set nine hours ago, but high in the night sky the two stars of Gamma Delphini strained towards each other, yearning to touch. For the rest of that night, the man named Starbuck leaned against the rememory-jukebox, sipping beer and playing B-17, the murder-memory, over and over . . .

While Jen the barmaid was tending bar in a Jumpjoint on Beta Delphini's fifth planet, another woman named Jen was on duty aboard the science-station on Biodome Nine, orbiting Gamma Delphini B. Or maybe the two Jens were both the same woman. Their synthetic bodies differed, of course: barmaid Jen was embodied in a barmaid-shaped hyde that was designed to look sexy, to please the customers, while the mind of Jen the scientist was encased in a prosthetic body that was custom-designed for her lab duties in the Biodome. Yet it was possible that both Jens were the same woman, or two overlapping women. Because the mind of Jen and the mind of Jen contained mutual memories. The half-remembered self-image of blue eyes and freckles, details of childhood, specific nightmares and joys: these were all encoded within the memory-tracks of one Jen's cybernetic brain. Likewise in the brain of Jen the other.

It's expensive to Jump a whole person—the caboodle of memories and choices that comprise an *individual*—across the gulf of interstellar space. Much easier and cheaper to transmit just *part* of a mind from one Jumpshack to the next. And then when the mind comes out the other end with Swiss-cheese holes, you plug the holes with bootleg memories or second-hand thoughts that were scavenged or scrounged from the skulls of unoccupied hydes. Every Jumpshack crew does this. Nobody likes to talk about it. The memories shared by Jen the barmaid and Jen the scientist didn't belong to either one of them. Those memories had originated in the brain of Jen some-other.

While barmaid Jen was working on Venator, Jen the scientist was doing *her* job on Biodome Nine, assisted by a smith.

The smith was named Smith, like all the smiths. His name had once been Brock, and he'd signed on as a grunt on a cargo ship, chugging through the galaxy at sub-light speed. He stayed sober at his first few ports of call, but at his fourth planet-port he jumped ship and got into a crap game with a psychokinetic Centaurian who made the dice dance just by wiggling his eyestalks. Brock gambled away all his possessions, except one: his physical body.

Bankrupt and desperate for jingle, Brock pawned his body at the nearest hockshop, knowing they'd have the legal right to sell his body to the Rent-a-Flesh traders if he didn't redeem the pledge in ten days. He left the hockshop in a badly dented hyde,

# Absolute Magnitude MSFA

and went looking for work. When the hyde broke down, and Brock couldn't afford the repairs, he traded it in for an older hyde with fewer body-options. Then *that* one broke, and nobody would repair it on credit. Stuck in a malfunctioning hyde, and hard up for jingle, Brock sold his memories to the thought-leggers, one at a time, and of course the mindsuckers wiped each memory from his cybergortex as they bought them.

That's a drawback of hydes. If you live inside that meat-knob called a *brain*, you can make copies of your memories just by sticking a stim-spigot to your scalp and duping off what you want. The original memory stays in your brain. If you leave your birth-body and climb into a Rent-a-Flesh, with all your memories downloaded into somebody else's skull, it's still possible to lift copies of your memories from the second-hand brain, even though most memory-collectors won't pay top price for memory reprints. But once your mind steps out of flesh and enters a hyde, you can't make copies of your memories and still keep the originals. The only way to download an imprint from a hyde's cybergortex is to wipe that part of the memory-tracks.

That's what bollixed Brock. With his body hocked—and his mind in a busted hyde—he needed jingle, but the only marketable assets that Brock still possessed were his memories. He sold them all, one by one, for whatever they fetched in the memory-markets, and each time he sold a fragment of his mind it was *gone*. Wiped. Forever. The Brain Police found a rusted hyde stumbling around, leaking hydraulic fluid, and when they did a skullscan on the mind inside the metal brain it registered only three points on a mindscale of 100. Practically mindless.

So they made him a smith. It's illegal for a body to walk around with nobody inside it, but the government isn't going to cough up the jingle to buy new memories for every skeeve who gambles away his own brain-pattern. Sector Control had a prefabricated brainwave template, that had been copied and recopied, and the worn-out personality in the template was named Smith. They took the rustbucket skull containing the last few crumbling remnants of the mind of Brock, and they topped it off with Smith. Afterwards, of course, he had no memory or knowledge of his own: he was just Smith. Interchangeable with several thousand other Skid Row cyberskells on a hundred-some planets. Each of them had once been a unique individual. Now they were all a bunch of smiths, with the same personality and memories.

This particular smith had wangled a few days' gruntage on Biodome Nine, where manual labor was still needed because Sector Supply hadn't shipped out the robots yet. The Biodomes orbiting Gamma Delphini B have a twelve-day week, so the Biodome crew hired the smith to haul fusion rods from Thursday till Lackaday.

Come Scatterday morning, the accident came.

The rusted-out smith was hauling cargo up a ramp, when suddenly one of his legs snapped. Fifty kilos of hardware went clatterjangling down the ramp, and hit Jen the scientist. She got knocked across the deckplates, and she cracked her cyber-noggin.

Skull fractures don't mean diddley to anyone inside a hyde, because usually the hyde can be repaired or replaced. But when Jen the scientist hit the deck, her skull's inner casing split open and her cybergortex shattered. The magnetic bytes on her memory-tapes became exposed, and they started to scramble. Only a cyberneticist with steady hands and twenty years' experience could transfer the damaged cortex into a new hyde without erasing the tracks and *killing the person* encoded on them.

Doctor Johnny was on Venator when the SOS arrived. Sector Control had rigged his multitrionic brain with a receiver tuned to the distress band, so he knew he was needed.

But Venator is 5.769 light-years away from Biodome Nine. In order to get there pronto, Doctor Johnny would have to Jump.

What's the fastest thing in the universe?

Light-waves? Phooey! Light-waves are slowpokes. Tachyons? Double phooey on tachyons! Give up?

The fastest thing in the universe is *thought*.

Thoughts exist as a stream of electrons in the brain, and electrons can travel at the speed of light . . . if there's nothing to stop them. But inside a skull, the brain and the bone are like electronic resistors, designed to *slow down* the currents of thought. Unlock the brain, jailbreak the skull, and the thoughts escape free.

Give a thought enough room, and it can travel *faster* than light. Maybe you've heard that tachyons can go beyond the speed of light and travel backwards against the flow of time. Well, thought-waves are even faster than tachyons, and thought-waves can travel backwards in time too. Now you know how memory works.

Ever heard of sympathetic vibrations? Take two banjos, perfectly in tune. (There's no such thing as a banjo that's *in tune*, but we'll ignore that part.) Put the two banjos ten meters apart. Twang the G-string on banjo the first, and the G-string of banjo the second will twang the same note all by itself. That's how the Jump works.

The first Jump from Earth to the moon used identical twins. It's been proven umpty-seven times that identical twins are in telepathic contact over long distances. Their brainwaves share the same frequency, just like those two banjos. The first Jump used Japanese twins. (The Jump technology was invented by Americans, but as usual the Japanese were the ones who figured out how to get rich from it.) They put one Japanese twin in Tokyo, and sent the other to the Luna colony in Aristarchus Crater. The twin on the moon was wired to the receiving unit: a catatonic mental patient, who'd been shipped to the moon with no functioning mind inside his brain. Wired up to the twin in Tokyo, they had a test subject: a Japanese axe-murderer named Sakata who'd been promised a pardon if this stunt worked.

They transferred Sakata's mind into the Tokyo twin, then they Jumped him into the mind of the twin on the moon, and downloaded him into the catatonic brain of the mental patient. They quizzed the body to make sure the guy inside it was Sakata. Then they reversed the polarity, Jumped him home again, and granted him a pardon. Three days later he hopped a freight to Hokkaido, got an axe, and chopped twenty-seven people into teriyaki, but that's not part of this story.

Using the minds of identical twins as transceivers, the Jump engineers stepped up the wattage of the Jump hardware, and amplified the alpha-waves emanating from each twin's brain so they could do longer Jumps, from Earth to Venus. Then someone found something that worked better than twins: people with Multiple-Personality Disorder. It's been proven that people who developed multiple personalities in childhood, while their brain tissue was still forming, have abnormal neural pathways in their brains. The Jumpcorp found a woman in Montreal with nineteen different personalities living inside her head, and they teamed her with a teenage boy from Australia with fourteen people in his skull. The two Multees practiced with the Jump interface until they could shunt their extra personalities into each other's brain. The Jumpcorp found a

# The Minds Who Jumped

volunteer. They plugged him into the Jump interface and sent his mind through the circuit, from the woman (on Venus) to the boy (on Mars) and then back. Worked just fine.

The techno-geeks kept improving the Jump hardware, while the interplanetary glutcorp that owned the Jump patents started hiring people with Multiple-Personality Disorder. Pretty soon a pair of Multees, wired up to transceivers on the same wavelength—one on Earth, one on Mars—were able to transmit fifty passengers a day. Another glutcorp, named Multiples Unlimited, decided to breed its own transceivers. They adopted children from Third World nations, then they locked the children in boxes and tortured them every night (plus matinees Wednesdays and Saturdays) until the children developed Multiple-Personality Disorder. Then they gave the home-grown Multees big paychecks to work as Jump transceivers. A third glutcorp started building artificial bodies—the first prototype hydes—and shipping them to Mars, so that when the minds came out the other end of the Jump they'd have bodies to Jump into.

Speaking of bodies, what happened to Starbuck? He was the only Terran on Venator wearing his own body, because he'd paid top jingle to travel all the way from Earth on a hyperlight starship.

Well, Starbuck was wearing his body and he intended to use it. On the night before his trip to Gamma Delphini, Br'er Starbuck went prowling in one of the skeevier parts of Venator's red-diode district. The cyberslums. The Beeperbahn. He met a three-breasted cyberslut named Triple-Nipple, who had electromagnetic ferro-moans, and he paid her to give him a ... well, he never got that far. She stuck a shiv in his sweetbreads and tried to download his credits into her own moolah-modem, but she couldn't crack his access code.

Next morning the Sector Police found Starbuck belly-over, with a cut in his guts from his butt to his nuts. He could walk, but he hurt like bejeezus, and that made Starbuck hopping mad. Today was Scatterday; he had to be on Biodome Seven by 1530 hours, with a set of stimi-spigots wired up to his brain ... so that he could witness the spectacular interphase of the binary star, and record his brain's sensory input and his emotional reactions. If Starbuck felt *pain* during the sensory recording, his pain would be recorded as part of the rememory, which would decrease its value to the memory-merchants. Nobody buys pain-memories, except masochists. And if Starbuck took pain-killers, the drugs in his body would dull the sensory recording. Starbuck needed a functioning body *fast*, before the binary star erupted, or his trip to Gamma Dee B would be a waste of his jingle.

He made some calls. There was a Rent-a-Flesh for hire in the Gamma Delphini system, in a corpse-cooler on Biodome Four. A good body; only three previous owners. Starbuck sent a subspace message to have the empty body shipped to the Jump terminal aboard Biodome One, and he beamed them the credits to pay for it. Then he had his luggage and his memory-recording gear shipped by hyperlight cargo ship to Biodome Seven, with a security prefix keyed in so nobody else could use his rig. Starbuck was about to pay for his own passage on the same cargo ship, when he remembered Quarrel. The manager of the local Jumpjoint had offered to finance Starbuck's next Jump. Why pay starfare if you can Jump for free?

Starbuck took a robo-rickshaw to the main Jumpshack on Venator, and he arranged to have his mind Jumped from Venator to the empty body on Biodome One.

Starbuck's plan was to leave his own body on Venator, come out on Biodome One wearing the Rent-a-Flesh, hop a fast cargo ship to Biodome Seven and have his rented body's borrowed brain wired up to the memory-recorder in time for 1530 hours. He paid the mazooma to have his own body kept in cold-storage on Venator until he got back, plus he bribed some Venatorian bigwigs to make sure that nothing strange would happen to his body while he wasn't wearing it.

All of this was around the same time that the SOS transmission inside Doctor Johnny's metal skull told him to hustle his hydraulic butt to the Gamma Delphini system, so he could save the life of Jen the scientist. While Doctor Johnny ran to the Jumpshack on Venator, the Jump crew on Biodome One had a body ready to receive him: a custom-built hyde with four sets of hands, and micro-welders built into the fingers. Any mind could have occupied that hyde, but Doctor Johnny had the only mind in the Delphinus sector with the experience and know-how to transfer a mental pattern from a damaged cybercortex without wiping it. It was all up to him.

And now this joint is Jumpin'.

Doctor Johnny had Jumped before, so he easily coaxed his brainwaves out of the beta phase (14 to 30 cycles per second) and into the more restful alpha state below 14 cycles. When he mellowed into deep alpha—brainwaves under 9 c.p.s.—the Jumpcrew shunted his mind into the brain of the transmitter, a teenage girl with multiple personalities who could juggle seventeen different ids without glitching. The Multee went into mind-synch with the receiver—another Multee on duty at Biodome One—using a prearranged cycle. When their brainwaves' sine curves matched, peak for peak, the transfer would be made.

Unfortunately, because of the distances involved, it would take nineteen minutes to complete the Jump. Not even a Jump can travel 5.769 light-years instantaneously.

Doctor Johnny cast off his steel body and jaunted. Mind-naked. He was a series of thoughts, a mosaic of memories and experiences. He was the part of a man that remains after all else is removed except the "I". He flew. He galaxed. He Jumped.

And suddenly there was someone in front of him who wasn't supposed to be there, someone blocking his way and slowing him down. And because Doctor Johnny in his Jump-phase had no mouth to speak the words, he had to *think* to touch the other. One mind tapped another mind on the shoulder, while they cannonballed through interstellar space at fifteen thousand times the speed of light.

"geT Out of the wAY, thEre," Doctor Johnny told the other. "I'm oN offiCial SeCtor bUsinEss. eMeRgenCy."

"yoU cAn sTICK yOur EmERGEncY," guffawed the mind of Starbuck, because he was in the Jump-transmission directly ahead of Doctor Johnny. "i'M on STArBUCK's BuSiNESS, BROther."

Doctor Johnny's mind was in the delta phase now, below five brainwave cycles per second, which is where REM sleep and other strange things live. He had an emergency override signal hypnoed into his mental pattern by Sector Control, for occasions like this. He *thought* the signal. This was supposed to cause frequency gain all the length of the transmission, and enable his mindwaves to bypass any other mental patterns in the Jumpline.

But Starbuck just laughed, and flipped the same signal back extra-jangled. "dOn'T sKEEve Me, fRIeNd. I'M iN a hURry, I'm aHEad oF yoU, AND I pLaN tO stAY tHat wAy. I gaVE a

# Absolute Magnitude MSFA

gUy at tHe JuMPsHaCK fIFTY cREDiTs to bOOst tHAt SAme qVERriDe siGnAL iNtO My oWN tRAnsMIsSiOn pATteRn."

Doctor Johnny choked with outrage, if a man without a body can choke with anything. "uNauTHoriZed uSe of SEcTor seCUrItY freQueNCies Is a FeLoNY."

"blow iT oUt yOUR BaZoo, bUDdy. i'VE gOt a dAtE WitH a hOt sTeLLar FlaRe ouT by Gamma Dee B, and nO sPacE-CoP cAn sTOP Me." Even without a body or a brain, Starbuck still retained his nasty chuckle. "heLL, I'Ve BriBed JuDGes wHo haVEn't EveN bOrn Yet."

Well, Doctor Johnny tried everything. He *thought* himself this way and that, trying to get past Starbuck. The only weapons Doctor Johnny's Jump-self had were his memories and the facets of his mind, so he hurled those at Starbuck's mind and tried to knock it aside. Starbuck just laughed and kept Jumping. And he notched up the gain on his mental override, so that he could jam Doctor Johnny's brainwave pattern and fuzz it into the background noise of interstellar space.

And at the end of the Jump, Starbuck arrived inside the brain of a multiple-personality case aboard Biodome One. He identified himself to the Multee, and was duly shunted into the Rent-a-Flesh body that they'd thawed out for him. And when Starbuck opened the defrosted eyelids of his bartered face, and turned to see the Biodome's crystal wall and the starscape beyond, the first thing he saw was the binary star Gamma Delphini entering its matter-energy interchange. A tongue of flame from the yellow-white star licked the golden sun, and both stars embraced. The cosmic orgasm was the most spectacular sight ever witnessed by Earthborn eyes, and Starbuck had arrived just in time to see it . . . but too late to record it, too late to stick a price tag on it. And as the cosmos reached its climax, Starbuck reacted in the way he felt was most appropriate:

"Goddamn it to Hell," he said. "I could have made *money* off that!"

And on Biodome Nine, a woman in a broken metal body was dying. Doctor Johnny didn't arrive in time to save the mind of Jen the scientist. Doctor Johnny didn't arrive at all. The Jumpcorp checked the pattern logs for any trace of Doctor Johnny's thoughts or memory-patterns. There was zilchness. Doctor Johnny was dead.

On Pluterday morning, Jen the barmaid on Venator was visited by two hydes bearing a teleportfolio from Sector Council's legal division. Space-lawyers. Cybershysters. They harrumphed their titanium tonsils and explained. Doctor Johnny had saved up his pay, and he'd bought some insurance. The policy was in Jen's name, and he'd never told her. The loophole-merchants downloaded several kilocredits into Jen's mazooma-module, and then they limboed back to whatever asteroid they'd crawled out from under. Jen was suddenly rich, but she didn't think about that. She'd always wondered if Doctor Johnny had been sweet on her. Now she *knew*, and it was too late forever.

She ditched her job, and then she elsewheredd. She asked questions, and learned that Johnny's signal had been lost because someone had jammed him, using an illegal override frequency. She bribed a smith to give her access to the Jump logs, and she saw Starbuck's name. She quizzed a few memory-merchants on Prox' Centauri. Sure, they knew Starbuck. He'd shown up at the memory-auctions with a boodle of brain-bytes for sale, shortly after Doctor Johnny vanished. No, Starbuck had not sold anyone a rememory of the Gamma Delphini stellar interphase. Would have sold one if he'd had

one, of course. Starbuck would sell his own grandmother to the bait shop if he'd had a grandmother handy.

So Jen knew who had killed Doctor Johnny. She thought of revenge, and then she thought of forgiveness. Then she thought of revenge again, and then she thought of a plan.

Jen checked a chart. The white sun Beta Delphini is the only star system within twenty light-years of Gamma Delphini. So anybody who heads out to Gamma Delf from Earth or Centauri is sure to stop at Beta Delf first. That's the safest and cheapest way to cross the galaxy: use the stars like stepping-stones.

Now Jen the barmaid disappeared. She invested her money, and she vanished. For nearly 7.3 years. Now it was almost time for the binary star Gamma Delphini to have another interphase. And a man with a spreadchuckle grin and a neon-colored suit showed up on Venator, clutching a Mandelbrot satchel. He was a gimp with a limp and a hopscotch crotch, as if somebody had once tried to subdivide his gonads with a shiv. His name was Starbuck, and he yawped about the awesome stellar flare that would enrapture all humanity if one smart guy could seal it in plastic and make copies of it. He unlatched his satchel, and showed off all the memory-recorders and sensory spigots he was carrying. Because these were the gizmos he planned to employ to capture the rapture and shackle the joy.

And in a bar on Venator, he met a woman wearing flesh. She had the only flesh-born female body in the Delphinus sector, and it had cost her plenty of jingle to bring it here by hyperlight starship. She was a class act, far too classy to blink an eyelash at a cybersleaze like Starbuck. Naturally he made a pass at her.

No, she wasn't Jen in disguise. Well, yes she was but no she wasn't. Jen had bought herself a fleshware body, top of the line with designer genes. She'd had a brainwipe, to remove all her least favorite memories, and she plugged the gap in her mind with a custom-designed happy childhood. She had her personality rebooted, and they liposuctioned her soul. Jen had bought herself a new self. She had no memory of Jen the barmaid; it was almost as if her former Jen-self had never existed. In fact, now her name was Neverjen. But there was one part of her soul that she had never let the cybersurgeons touch. Deep down, she was still sweet on Doctor Johnny.

The lady Neverjen went for Starbuck really big . . . or at least she pretended to. She invited him up to a hotel suite that had a zero-gravity waterbed and a holographic mirror on the ceiling. Starbuck was amazed that a classy lassie with a sassy chassis would go for him. So he put the moves on her: "Baby, you and me have got the only flesh-bodies on Venator. What say we study biology?"

This was not exactly subtle, but the lady Neverjen seemed to like it. "I have a better idea," she whispered. "Ever make it with somebody during a Jump?"

"Baby, you're scamming me."

"Don't be so sure." The rob Butler arrived with a Klein bottle containing an infinite amount of champagne, and Neverjen filled two glasses. "There's a new technology now," she told Starbuck. "They can transmit organic tissue—living flesh—along the Jump frequencies. It's *extremely* arousing, especially when two people Jump together. Only the wealthiest can afford it. Fortunately I can afford two round-trip starfares to Gamma Delphini. How about it? We can Jump . . . together."

She plied him with champagne and coaxed him down to the Jumpshack. The Jumpcrew were all friends of Neverjen, and they assured Starbuck that she had told him the truth. A droid named Floyd told Starbuck that physical mass could now be retained during the Jump transmission, so that two people could Jump simultaneously, and *all physical stimuli* (nudge, nudge,

# The Minds Who Jumped

wink, wink) would be heightened to nearly infinity during the Jump. Neverjen disbursed the moolah to pay for two Jumps, plus the cost to transmit Starbuck's memory-recording gear to the Biomech ring orbiting Gamma Delphini B. She promised him they would get there in plenty of time to record the binary star's matter-energy transfer.

Starbuck's brain was in his wallet. He was thinking about how much money he would make at the memory-auctions if he could talk Neverjen into wiring herself up to his sensory-recorders and then having sex with him while they both witnessed the binary star's contact phase. A stereophonic sex-memory with astrophysical foreplay was worth top jingle to any rememory-collector.

So Starbuck was busy thinking about the two bulges in his pants (one of which was his wallet) when the Jumptechnics slipped his head into the brain-bucket. And then all at once he

"wHaT thE Hell iS gOInG on HEre?"

The mind of Starbuck was howling towards Gamma Delphini at fifteen thousand times the speed of light, without physical mass. It was a perfectly normal Jump. But Starbuck had expected to Jump while wearing his body and embracing a blonde named Neverjen. Instead; no body, no blonde, no embrace.

Then a mind came up in front of him and slapped his own mind's face. It was the mind of Jen-and-Neverjen. She'd entered the Jumpline ten seconds before Starbuck, so that she was ahead of him while they Jumped through stellar gulf. "d)eS thIs PlaCE sEEm faMIliar?" she asked him.

"YoU liEd to mE, lAdy."

"I maY bE a LiAr, buT At LeAst i'M nOt a muRdereR. YeT," hissed the she-mind of Jen. She had no body in the Jump; all she had now were her mind, her thoughts, her memories. So she showed Starbuck the parts of her memories that contained Doctor Johnny, and then Starbuck knew who she was.

"i'Ve BEen tRICKed bY a bARMaId!" he howled.

But Jen the she-mind just laughed. "tHE TriCK hASn'T EVen sTARTed yEt, mISter."

Then she told him. She'd bribed the Jumpcrew on Venator to wait until she and Starbuck were halfway to Gamma Delphini, and then to beam a high-frequency shockwave across every wavelength in the Jump range. In the Jump between the stars, Starbuck had Neverjen in front of him and a powerful shockwave barreling up behind him, getting closer every second. It would ripple through space from Venator to Gamma Delphini until it caught up with the sine curves of modulated energy that comprised the mid-Jump mind of Starbuck. The two patterns would mesh amplitudes, and cancel each other out.

"bUt i'LL DiE!" Starbuck moaned. And just ahead of him, in interstellar void, the voice of Jen-and-Neverjen just whispered:

"Yes."

Then she told him the rest. "I wENt InTo thE JumP aHEaD oF yOU, StaRBuck, sO tHAt i cOULD seE thE LoOk oN youR mInd whEN it dLEs. I wAnt To See yoU DiE tRYinG to GeT pAST mE in thE JumPLine, thE wAY DoCtOr JoHNNy diEd tRYinG To gEt PasT YOU. bUt I WON't leT you gET pAsT Me. thE sHOckWAye WILL kiLL yoU WhEn it tEACHES uS, sTArBUCK. tHERE's a CHAnce iT MiGht KILL mE TOO. BuT iF my mIND gETs nULLED oUT HERe, aMOnG thE stArS, at LEAsT i'll be wHEReVER JoHNNy iS."

Starbuck didn't want to get nulled. If he could speed up his thoughts, intensify his brainwaves, his mind could shoulder its way past Jen's mind in the Jumpline, and get in front of her.

Then, when the shockwave arrived, the first thing it struck would be Jen. With any luck, her brainwaves and the oncoming shockwave would fuzz each other out. The barmaid would die, of course, but Starbuck's mind would arrive in the transceiver orbiting Gamma Delphini. He'd take whatever body they downloaded him into, and find his own body later.

So Starbuck tried to shove past Jen. One of them had to die out here, and he sure as hell didn't want it to be *him*. His mind did everything it could to outrace Jen's. Starbuck magnified his thoughts, he enhanced his memories. He ensubstanted himself, or tried to, by recalling the shape and shadow of his flesh.

But Jen kept Jumping right ahead of him. She'd been planning this for more than seven years, and she was ready. She had gathered her nightmares and hoarded her dreads. She flung an arsenal of nasty thoughts at Starbuck, trying to repel his mind.

Starbuck was fading fast. His brainwave pattern was beginning to deteriorate. The borders of his "I" were changing rapidly, dwindling zerowards. He unlocked his thoughts, and took out all his darkest memories. He flung a fusillade of phobias and fears at Jen's mind, and she cried out in pain. He sucked the pain-thoughts from her psyche, adding them to his own stockpile so that his mind became stronger. Then he unleashed his id. All the unremembered darklings of his mind came leaping out, flapping their bat-wings, and they clawed and scrawled at the most vulnerable part of Jen's mind: her innocence.

Then Starbuck snatched her, and the two minds fought in void, each one trying to claw its way past the other before the shockwave killed them both. By now Starbuck had peeled away the crusts of his mind, and he exposed the soft pink underself beneath. Down below here, in the dungeon of his soul, he kept suppressed the fragments of his weaker selves. The tortured child he'd been once, years ago. The young man with honesty and hope who'd had his teeth kicked in by greedier men until at last he outgrew them all. The man he'd been once, and the man he could have been, and the man he'd wanted to be. All the others of self, who still lurked in his mind. He unbuckled the floodgates, and attacked.

And all the Starbucks of his mind overpowered Jen, and engulfed her. Starbuck knew that in order to get in front of Jen in the Jumpline he would have to pass *through* her, have his brainwaves overtake hers and exceed hers without jamming the frequencies. So their minds overlapped, and in that instant every fragment of himself was interlaced with Jen. Soul-naked, they touched.

And Starbuck saw. He saw all the infinite Jens that might have been and were and never would be, and his mind shoved itself across the thresholds of all their infinite doorsteps. And in the corridors of Jen, he saw a million Jens who still loved Doctor Johnny, and a thousand Jens who cried revenge for Johnny's death, and a hundred Jens who wanted revenge so badly that they would go to desperate lengths to scare the hell out of Starbuck. But in all the Jen-minds, Starbuck couldn't find a single Jen who wanted revenge badly enough to actually kill him. That's when he knew she was bluffing. There was no shockwave coming to annihilate him. It was all a trick, just to scare him.

Starbuck guffawed, and his mind reached out to strangle the mind of Jen. "yOU liTtLe bArMaId bItCH! You hAd me gOInG foR a WhIle tHeRE! BuT nOW iT's My tUrN to . . ."

The galaxy exploded.

In the eyes of his mind, Starbuck saw. He'd calculated the precise moment in its 7.3-year cycle when the binary star

## Absolute Magnitude MSFA

Gamma Delphini would attain periastron. But he must have stubbed his toe on a decimal point, because his calculations were off. At that instant—nine hours ahead of schedule—the yellow-white star Gamma Dee A touched the golden sun Gamma Dee B, and the interphase began. And a tidal wave of cosmic energy—X-rays and gravitons and quarks—came flooding into a head-on collision with the two beams of modulated energy that were the minds of Jen and Starbuck.

Jen was in front of Starbuck, so the blast hit her first. And her mind screamed. And in the scream, Starbuck heard another voice:

"jEn! JeN, mY daRLiNg! iS tHaT YoU?"

It was the voice of a mind. Starbuck had heard it once before, in a Jump through this same region of space 7.3 years ago. It was the mind of Doctor Johnny, touching Jen. And Starbuck wondered if . . .

Then the blast of energy from the binary star's interphase hit him dead-on, and that was all Starbuck knew.

Aboard the Jump station on Biodome One, they caught an incoming transmission. The receiving unit was a multiple-personality case with twenty-nine different minds inside his head. He felt a stowaway mind coming into his brain, through the Jumpware headset, and immediately he tried to download the pattern into the skull of an empty hyde.

But something was wrong. Cosmic waves were flooding outward from the binary star, so the transmission was garbled. The Jumpcrew had to boost the gain to tune out all the static. Finally the synthetic body of the hyde blinked its metal eyelids, and shook its head, and it spoke:

"Where the hell am I?"

The mind that made it through the Jump alive was Starbuck.

Well, not exactly. It was Starbuck, but parts of him had been lost in transmission. Some of his traits and memories were lost, and something else had taken their place: the bravery and

compassion of a man named Doctor Johnny, and the generosity and innocence of a former barmaid named Jen. The man inside the mind was still named Starbuck, but he'd lost a part of himself . . . the greedy part. And then again, maybe he'd found a part of himself that had been lost.

Starbuck's credit was good, so he booked a Jump back to Venator and scurried into his own body again. Then he went home to Prox' Centauri, and inspected his merchandise. He had ten thousand memories in separate bottles, with little neat labels, that he'd collected all across the galaxy. He had nine thousand different dreams, stuffed and mounted and spread-eagled to show off their wingspans. He thought of setting the memories free, but that was no good because most of them wouldn't survive in the wild without someone to feed them.

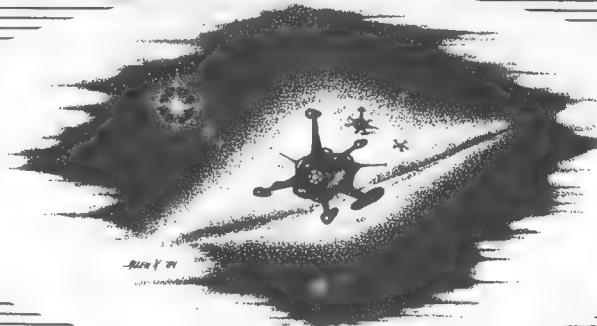
So Starbuck built a dream-museum, and a memory-zoo. Admission was strictly by barter: bring one of your own dreams or memories that you don't want anymore, and trade it in at the braingate. Schoolchildren from ninety-three planets came on field trips to pet the memories (well, only the tamer ones), and scientists came to study and catalogue the contents of Starbuck's dream-archive. And twice a year, for members only, the Nightmare Club had a wine and cheese party in Starbuck's soundproofed Nightmare Gallery and Scream Atrium. Stop off at the souvenir stand and buy some thrill-pills, or get your personality massaged at the Brainwave Boutique.

What happened to Jen and Doctor Johnny? No one knows. Maybe they died out there in space. Maybe they found a universe next door, and they live there together. But you can bet your bottom quark that sooner or later Old Man Entropy will come and snatch us all, in the heat-death of the universe. Live and enjoy and try to love somebody while you have the chance, because infinity isn't what it used to be. Only death is forever. The rest is just illusions and dreams.

The half-life of a dream is sixteen seconds.



## EXPLORING NEW WORLDS WITH ARGONAUT



Since 1972, the best in new science fiction and weird fantasy.

ARGONAUT: \$4.95 per copy, postage-paid to the U.S.A. (to Canada, \$5.50; air mail, \$7.50)

2-issue subscriptions are \$8.00 U.S., \$10.00 Canada, \$13.00 air mail • U.S. funds only

Texas residents must include 8% sales tax.



Argo Press • P.O. Box 4201 • Austin, Texas 78765



C.J. Cherryh's first book, *The Gates of Ivrel*, was published in 1976.  
Since that time she has written more than thirty novels winning Hugo awards for *Down Below Station* and *Cyteen*.  
Her latest novels are *Tripoint* from Aspect and *Foreigna* from Daw.

## THE SCAPEGOAT

by  
C.J. Cherryh

Copyright 1994

DeFranco sits across the table from the elf and he dreams for a moment, not a good dream, but recent truth: all part of what surrounds him now, and true as any memory ever is—a bit greater and a bit less than it was when it was happening, because it was gated in through human eyes and ears and a human notices much more and far less than what truly goes on in the world—

*—the ground comes up with a bone-penetrating thump and dirt showers down like rain, over and over again; and deFranco wriggles up to his knees with the clods rattling off his armor. He may be moving to a place where a crater will be in a moment, and the place where he is may be one in that same moment. There is no time to think about it. There is only one way off that exposed hillside, which is to go and keep on going. DeFranco writhes and wriggles against the weight of his armor, blind for a moment as the breathing system fails to give him as much as he needs, but his throat is already raw with too much oxygen in three days out. He curses the rig, far more intimate a frustration than the enemy on this last long run to the shelter of the deep tunnels . . .*

He was going home, was John deFranco, if home was still there, and if the shells that had flattened their shield in this zone had not flattened it all along the line and wiped the base out.

The elves had finally learned where to hit them on this weapons system too, that was that; and deFranco cursed them one and all, while the sweat ran down in his eyes and the oxy-mix tore his throat and giddied his brain. On this side and that shells shocked the air and the ground and his bones; and not for the first time concussion flung him bodily through the air and slammed him to the churned ground bruised and battered (and excepting the armor, dead and shrapnel-riddled). Immediately fragments of wood and metal rang off the hard-suit and in their own gravity-driven sequence, clods of earth rained down in a patter mixed with impacts of rocks and larger chunks.

And then, not having been directly in the strike zone and dead, he got his sweating human limbs up again by heaving the armor-weight into hydraulic joint-locks, and desperately hurled fifty kilos of unsupple ceramics and machinery and ninety of quaking human flesh into a waddling, exhausted run.

Run and fall and run and stagger into a walk when the dizziness got too much and never waste time dodging.

But when the jolts stopped, and the shell-made earthquakes stopped, and deFranco, laboring along the hazard of the shell-cratered ground, became aware of the silence. His staggering steps slowed as he turned with the awkward foot-planting the armor imposed to take a look behind him. The whole smoky valley swung across the narrow view of his visor, all lit up with ghostly green readout that flickered madly and told him his eyes were jerking in panic, calling up more than he wanted. He feared that he was deaf; it was that profound a silence to his shocked ears. He heard the hum of the fans and the ventilator in the suit, but there would be that sound forever; he heard it in his dreams; so it could be in his

head and not coming from his ears. He hit the ceramic-shielded back of his hand against the ceramic-coated helmet and heard the thump, if distantly. So his hearing was all right. There was just the smoke and desolate cratering of the landscape to show him where the shells had hit.

And suddenly one of those ghostly green readouts in his visor jumped and said 000 and started ticking off, so he lumbered about to get a look up, the viewplate compensating for the sky in a series of flickers and darkenings. The reading kept up, ticking away; and he could see nothing in the sky, but base was still there, it was transmitting, and he knew what was happening. The numbers reached Critical and he swung about again and looked toward the plain as the first strikes came in and the smoke went up anew.

He stood there on the hillcrest and watched the airstrike he had called down half an eternity ago pound hell out of the plains. He knew the devastation of the beams and shells. And his first and immediate thought was that there would be no more penetrations of the screens and human lives were saved. He had outrun the chaos and covered his own mistake in getting damn near on top of the enemy installation trying to find it.

And his second thought, hard on the heels of triumph, was that there was too much noise in this world already, too much death to deal with, vastly too much, and he wanted to cry with the relief and fear of being moving. Good and proper. The base scout found the damn firepoint, tripped a trap and the whole damn airforce had to come and pull him out of the fire with a damn million credits worth of shells laid down out there destroying ten billion credits worth of somebody else's.

Congratulations deFranco.

A shiver took him. He turned his back to the sight, cued his locator on, and began to walk, slowly, slowly, one foot in front of the other, and if he had not rested now and again, setting the limbs of his armor on lock, he would have fallen down. As it was, he walked with his mouth open and his ears full of the harsh sound of his own breathing. He walked, lost and disoriented till his unit picked up his locator signal and beacons in the Lost Boy they never hoped to get back.

"You did us great damage then," says the elf. "It was the last effort we could make and we knew you would take out our last weapons. We knew that you would do it quickly and then you would stop. We had learned to trust your habits even if we didn't understand them. When the shelling came, towers fell; and there were over a thousand of us dead in the city."

"And they kept coming."

"They will." Until it's over or until they're dead."

DeFranco stares at the elf for a moment. The room is a small and sterile place, showing no touches of habitation, but all those small signs of humanity—a quiet bedroom, done in yellow and green pastels. A table. Two chairs. An unused bed. They have faced each other over this table for hours. They have stopped talking theory and begun thinking only of the recent past. And deFranco finds himself lost in elvish thinking again. It never quite makes sense. The assumptions between the lines

# Absolute Magnitude MSFA

are not human assumptions, though the elf's command of the language it quite thorough.

At last, defeated by logicless logic: "I went back to my base," says deFranco. "I called down the fire; but I just knew the shelling had stopped. We were alive. That was all I knew. Nothing personal."

There was a bath and there was a meal and a little extra ration of whiskey. HQ doled the whiskey out as a special privilege and sanity-saver and the scarcity of it made the posts hoard it and ration it with down to the gram precision. And he drank his three days' ration and his bonus drink one after the other when he had scrubbed his rig down and taken a long, long bath beneath the pipe. He took his three days' whiskey all at once because three days out was what he was recovering from, and he sat in his corner in his shorts, the reggs going about their business, all of them recognizing a shaken man on a serious drunk and none of them rude or crazy enough to bother him now, not with congratulations for surviving, not with offers of bed, not with a stray glance. The reggs were not in his command, he was not strictly anywhere in the chain of command they belonged to, being special ops and assigned there for the reg CO to use when he had to. He was 2nd Lt. John deFranco if anyone bothered and no one did hereabouts, in the bunkers. He was special ops and his orders presently came from the senior trooper captain who was the acting CO all along this section of the line, the major having got himself lately dead, themselves waiting on a replacement, thank-you, sir and ma'am; while higher brains kept themselves cool and dry and safe behind the shields on the ground a thousand miles away and up in orbit.

And John deFranco, special ops and walking target, kept his silver world-and-moon pin and his blue beret and his field-browns all tucked up and out of the damp in his mold-proof plastic kit at the end of his bunk. The rig was his working uniform, the damned, the cursed rig that found a new spot to rub raw every time he realigned it. And he sat now in his shorts and drank the first glass quickly, and the next and the next and the next in slow sips, and blinked sometimes when he remembered to.

The reggs, male and female, moved about the underground barracks in their T's like khaki ghosts whose gender meant nothing to him or generally to each other. When bunks got double-filled it was friendship or boredom or outright desperation; all their talk was rough and getting rougher, and their eyes when pinned-down-for-three-days boredom set in were hell, because they had been out here and down here on this world for thirty-seven months by the tally on bunker 43's main entry wall; while the elves were still holding, still digging in and still dying at unreasonable rate without surrender.

"Get prisoners." HQ said in its blithe simplicity; but prisoners suicided. Elves checked out just by wanting to die.

"Establish a contact," HQ said. "Talk *at* them—" meaning by any inventive means they could; but they had failed at that for years in space and they expected no better luck onworld. Talking to an elf meant coming into range of either drones or live bodies. Elves cheerfully shot at any target they could get. Elves had shot at the first human ship they had met twenty years ago and they had killed fifteen hundred men, women, and children at Corby Point for reasons no one ever understood. They kept on shooting at human ships in sporadic incidents that built to a crisis.

Then humanity, all three humanities, Union, Alliance and remote sullen Earth, had decided there was no restraint possible

with a species that persistently attacked modern human ships on sight, with equipage centuries less advanced—*Do we have to wait, Earth's consensus was, till they do get their hands on the advanced stuff? Till they hit a world?* Earth worried about such things obsessively, convinced of its paramount worldbound holiness and importance in the universe. The cradle of humankind. Union worried about other things—like breakdown of order, like its colonies slipping loose while it was busy: Union pushed for speed in settling this business; Alliance worried because the elves were on its border right in the direction it wanted to expand to keep ahead of Union's ambitions. So Union wanted speed, Earth wanted to go back to its own convolute affairs; and Alliance wanted the territory, preferring to make haste slowly and not create permanent problems for itself on its flank. There were rumors of other things too, like Alliance picking up signal out of this direction, of something other than elves. Like real reason to worry. It was at least sure that the war was being pushed and pressed and shoved; and the elves shoved back. Elves died and died, their ships being no match for human-make once humans took after them in earnest and interdicted them the jump-points that let them near human space. But elves never surrendered and never quit trying.

"Now what do we do?" the joint command asked themselves collectively and figuratively—because they were dealing out bloody, unpalatable slaughter against a doggedly determined and under-equipped enemy, and Union and Earth wanted a quick solution. But Union as usual took the Long View: and on this single point there was consensus. "If we take out every ship they put out here and they retreat, how long does it take before they come back at us with more advanced armaments? We're dealing with lunatics."

"Get through to them," the word went out from HQ. "Take them out of our space and carry the war home to them. We've got to make the impression on them now—or take options no one wants later."

Twenty years ago. Underestimating the tenacity of the elves. Removed from the shipping lanes and confined to a single world, the war had sunk away to a local difficulty; Alliance still put money and troops into it; Union still cooperated in a certain measure. Earth sent adventurers and enlistees that were often crazier than the elves: base culled those in a hurry.

So for seventeen years the matter boiled on and on and elves went on dying and dying in their few and ill-equipped ships, until the joint command decided on a rougher course; quickly took out the elves' pathetic little space station, dropped troops onto the elvish world, and fenced human bases about with antimissile screens to fight a limited and on-world war—while elvish weaponry slowly got more basic and more primitive and the troops drank their little measures of imported whiskey and went slowly crazy.

And humans closely tied to the elvish war adapted, in humanity's own lunatic way. Well behind the lines that had come to exist on the elves' own planet, humans settled in and built permanent structures and scientists came to study the elves and the threatened flora and fauna of a beautiful and earthlike world, while some elvish centers ignored the war, and the bombing went on and on in an inextricable mess, because neither elves nor humans knew how to quit, or knew the enemy enough to know how to disengage. Or figure out what the other wanted. And the war could go on and on—since presumably the computers and the records in those population centers still had the design of starships in them. And no enemy which had taken what the elves had taken now was ever going to forget.

## The Scapegoat

There were no negotiations. Once, just once, humans had tried to approach one of the few neutral districts to negotiate and it simply and instantly joined the war. So after all the study and all the effort, humans lived on the elves' world and had no idea what to call them or what the world's real name was, because the damn elves had blown their own space station at the last and methodically destroyed every record the way they destroyed every hamlet before its fall and burned every record and every artifact. They died and they died and they died and sometimes (but seldom nowadays) they took humans with them, like the time when they were still in space and hit the base at Ticon with 3/4 cee rocks and left nothing but dust. Thirty thousand dead and not a way in hell to find the pieces.

That was the incident after which the joint command decided to take the elves out of space.

And nowadays humanity invested cities they never planned to take and they tore up roads and took out all of the elves' planes, and they tore up agriculture with non-nuclear bombs and shells trying not to ruin the world beyond recovery, hoping to eventually wear the elves down. But the elves retaliated with gas and chemicals which humans had refrained from using. Humans interdicted supply and still the elves managed to come up with the wherewithal to strike through their base defence here as if supply were endless and they were not starving and the world was still green and undamaged.

DeFranco drank and drank with measured slowness, watching regis go to and fro in the slow dance of their own business. They were good, this Delta Company of the Eighth. They did faithfully what regis were supposed to do in this war, which was to hold a base and to keep the roads secure that humans used, and to build landing zones for supply and sometimes to go out and get killed inching humanity's way toward some goal the joint command understood and which from here looked only like some other damn shell-pocked hill. DeFranco's job was to locate such hills. And to find a prisoner to take (standing orders) and to figure the enemy out if he could.

Mostly just to find the hills. And sometimes to get his company into taking one. And right now he was no more damn good, because they had gotten as close to this nameless city as there were hills and vantages to make it profitable, and after that they went into the flat and did what?

Take the place inch by inch, street by street, and discover every damn elf they met had suicided? The elves would do it on them, so in the villages south of here they had saved the elves the bother, and got nothing for their trouble but endless, measured carnage, and smooth skinned corpses the drew the small vermin and the huge winged birds—(they've been careful with their ecology, the Science Bureau reckoned, in their endless reports, in some fool's paper on large winged creatures' chances of survival if a dominant species were not very careful of them—)

(—or the damn birds are bloody-minded mean and tougher than the elves, deFranco mused in his alcoholic fog, knowing that nothing was in all space and creation, more bloody-minded than the elves.)

He had seen a young elf child holding another, both stone dead, baby locked in baby's arms: they love, dammit, they love. And he had wept while he staggered away from the ruins of the little elvish town, seeing more and more such sights—because the elves had touched off bombs in their own town center, and turned it into a firestorm.

But the two babies had been lying there unburnt and no one wanted to touch them or look at them. Finally the birds came.

And the regis shot at the birds until the CO stopped it, because it was a waste: it was killing a non-combatant life form, and that (O God!) was against the rules. Most of all the CO stopped it because it was a fraying of human edges, because the birds were always there and the birds were the winners, every time. And the damn birds like the damn elves came again and again, no matter that shots blew them to puffs of feathers. Stubborn, like the elves. Crazy as everything else on the planet, human and elf. It was catching.

DeFranco nursed the last whiskey in the glass, nursed it with hands going so numb he had to struggle to stay awake. He was a quiet drunk, never untidy. He neatly drank the last and fell over sideways limp as a corpse, and, tender mercy to a hill-finding branch of the service the hill-taking and road-building regis regarded as a sometime natural enemy—one of the women came and got the glass from his numbed fingers and pulled a blanket over him. They were still human here. They tried to be.

"There was nothing more to be done," says the elf. "That was why. We knew that you were coming closer, and that our time was limited." His long white fingers touch the table-surface, the white, plastic table in the ordinary little bedroom. "We died in great numbers, deFranco, and it was cruel that you showed us only slowly what you could do."

"We could have taken you out from the first. You knew that." DeFranco's voice holds an edge of frustration. Of anguish. "Elf, couldn't you even understand that?"

"You always gave us hope we could win. And so we fought, and so we still fight. Until the peace. My friend."

"Franc, Franc—" —it was a fierce low voice, and deFranco came out of it, in the dark, with his heart doubletimed and the instant realization it was Dibs talking to him in that low tone and wanting him out of that blanket, which meant wire-runners or worse, a night attack. But Dibs grabbed his arm to hold him still before he could flail about. "Franc, we got a move out there, Jake and Cat's headed out down the tunnel, the lieutenant's gone to M1 but M1's on the line, they want you out there, they want a spotter up on hill 24 doublequick."

"Uh." DeFranco rubbed his eyes. "Uh." Getting upright was brutal. Standing was worse. He staggered two steps and caught the main shell of his armor off the rack, number 12 suit, the lousy stinking armor that always smelled of human or mud or the purge in the ducts and the awful sick-sweet cleaner they wiped it out with when they hung it up. He held the plastron against his body and Dibs started with the clips in the dim light of the single 5-watt they kept going to find the latrine at night—"Damn, damn, I gotta—" He eluded Dibs and got to the toilet, and by now the whole place was astir with shadow-figures like a scene out of a gold-lighted hell. He swigged the stinging mouthwash they had on the shelf by the toilet and did his business while Dibs caught him up from behind and finished the hooks on his left side. "Damn, get him going," the sergeant said, and "Trying," Dibs said, as others hauled deFranco around and began hooking him up like a baby into its clothes, one piece and the other, the boots, leg and groin-pieces, the sleeves, the gloves, the belly clamp and the backpack and the power-on—his joints ached. He stood there swaying to one and another tug on his body and took the helmet into his hands when Dibs handed it to him.

"Go, go," the sergeant said, who had no more power to give a special op any specific orders than he could fly; but HQ was in a stew, they needed his talents out there, and de Franco let

# Absolute Magnitude MSFA

the reg shovels him all they liked: it was his accommodation with these reg when there was no peace anywhere else in the world. And once a dozen of these same reg had come out into the heat after him, which he never quite forgot. So he let them hook his weapons-kit on, then ducked his head down and put the damned helmet on and gave it the locking half-twist as he headed away from the safe light of the barracks pit into the long tunnel, splashing along the low spots on the plastic grid that kept heavy armored feet from sinking in the mud.

"Code: *Nightsight*," He told the suit aloud, all wobbly and shivery from too little sleep; and read his hoarse voice patterns and gave him a filmy image of the tunnel in front of him. "Code: *ID*," he told it, and it started telling the two troopers somewhere up the tunnel that he was there, and on his way. He got readout back as Cat acknowledged. "1a-6yg-p30/30," the green numbers ghosted up in his visor, telling him Jake and Cat had elves and they had them quasi-solid in the distant-sensors which would have been tripped downland and they themselves were staying where they were and taking no chances on betraying the location of the tunnel. He cut the ID and Cat and Jake cut off too.

*They've got to us, de Franco thought. The damned elves got through our screen and now they've pushed through on foot, and it's going to be hell to pay—*

Back behind him the rest of the troops would be suiting up and making a more leisurely prep for a hard night to come. The elves rarely got as far as human bunkers. They tried. They were, at close range and with hand-weapons, deadly. The dying was not all on the elves' side if they got to you.

A cold sweat had broken out under the suit. His head ached with a vengeance and the suit weighed on his knees and on his back when he bent and it stank with disinfectant that smelled like some damn tree from some damn forest on the world that had spawned every human born, he knew that, but it failed as perfume and failed at masking the stink of terror and of the tunnels in the cold wet breaths the suit took in when it was not on self-seal.

He knew nothing about Earth, only dimly remembered Pell, which had trained him and shipped him here by stages to a world no one bothered to give a name to. Elfland, when HQ was being whimsical. Neverneverland, the reg called it after some old fairy tale, because from it a soldier never never came home again. They had a song with as many verses as there were bitches of the things a soldier in Elfland never found.

## I

*Where's my discharge from this war?  
Why, it's neverneverwhere, my friend.  
Well, when's the next ship off this world?  
Why, it's neverneverwhen, my friend.*

*And time's what we've got most of,*

*And time is what we spend*

*And time is what we've got to do*

*In Neverneverland.*

He hummed this to himself, in a voice jolted and crazed by the exertion. He wanted to cry like a baby. He wanted someone available to curse for the hour and his interrupted rest. Most of all he wanted a few days quiet on this front, just a few

days to put his nerves back together again and let his head stop aching . . .

. . . Run and run and run, in a suit that keeps you from the gas and most of the shells the elves can throw—except for a few. Except for the joints and the visor, because the elves have been working for twenty years studying how to kill you. And air runs out and filters fail and every access you have to Elfland is a way for the elves to get at you.

Like the tunnel openings, like the air vents, like the power plant that keeps the whole base and strung-out tunnel systems functioning.

Troopers scatter to defend these points, and you run and run, belatedly questioning why troopers want a special op at a particular point, where the tunnel most nearly approaches the elves on their plain.

Why me, why here—because, fool, HQ wants close-up reconnaissance, which was what they wanted the last time they sent you out in the dark beyond the scife points—twice, now, and they expect you to go out and do it again because the elves missed you last time.

Damn them all. (With the thought that they will use you till the bone breaks and the flesh refuses. And then a two week rest and out to the lines again.)

They give you a medical as far as the field hospital; and there they give you vitamins, two shots of an antibiotic, a bottle of pills and send you out again. "We got worse," the meds say then.

*There are always worse. Till you're dead.*

DeFranco looks at the elf across the table in the small room and remembers how it was, the smell of the tunnels, the taste of fear.

## II

*So what're the gals like on this world?*

*Why, you nevernevermind, my friend.*

*Well, what're the guys like on this world?*

*Well, you neverneverask, my friend.*

"They sent me out there," deFranco says to the elf, and the elf—a human might have nodded but elves have no such habit—stares gravely as they sit opposite each other, hands on the table.

"You always say 'they,'" says the elf. "We say 'we' decided. But you do things differently."

"Maybe it is we," deFranco says. "Maybe it is, at the bottom of things. We. Sometimes it doesn't look that way."

"I think even now you don't understand why we do what we do. I don't really understand why you came here or why you listen to me, or why you stay now—But we won't understand. I don't think we two will. Others maybe. You want what I want. That's what I trust most."

"You believe it'll work?"

"For us, yes. For elves. Absolutely. Even if it's a lie it will work."

"But if it's not a lie—"

"Can you make it true? You don't believe. That—I have to find words for this—but I don't understand that either. How you feel. What you do." The elf reaches across the table and slim white hands with overtint like oil on water catch at brown,

## The Scapegoat

matte-skinned fingers whose nails (the elf has none) are broken and rough. "It was no choice to you. It never was even a choice to you, to destroy us to the heart and the center. Perhaps it wasn't to stay. I have a deep feeling toward you, deFranco. I had this feeling toward you from when I saw you first; I knew that you were what I had come to find, but whether you were the helping or the damning force I didn't know then, I only knew that what you did when you saw us was what humans had always done to us. And I believed you would show me why."

DeFranco moved and sat still by turns, in the dark, in the stink and the strictures of his rig; while somewhere two ridges away there were two nervous reg's encamped in the entry to the tunnel, sweltering in their own hardsuits and not running their own pumps and fans any more than he was running his—because elvish hearing was legendary, the rigs made noise, and it was hard enough to move in one of the bastards without making a racket: someone in HQ suspected elves could pick up the running noises. Or had other senses.

But without those fans and pumps the below-the-neck part of the suit had no cooling and got warm even in the night. And the gloves and the helmets had to stay on constantly when anyone was outside: it was the rule: no elf ever got a look at a live human, except at places like the Eighth's Gamma Company. Perhaps not there either. Elves were generally thorough.

DeFranco had the knee-joints on lock at the moment, which let him have a solid prop to lean his weary knees and backside against. He leaned there easing the shivers and the quakes out of his lately-wakened and sleep-deprived limbs before he rattled in his armor and alerted a whole hillside full of elves. It was not a well-shielded position he has taken: it had little cover except for the hill itself, and these hills had few enough trees that the fires and the shells had spared. But green did struggle up amid the soot and bushes grew on the line down on valley level that had been an elvish road three years ago. His nightsight scanned the brush in shadow-images.

Something touched the sensors as he rested there on watch, a curious whisper of a sound, and an amber readout ghosted up into his visor, dots rippling off in sequence in the direction the pickup came from. It was not the wind: the internal computer zeroed out the white sound of wing and suit-noise. It was anomalies it brought through and amplified; and what it amplified now had the curious regular pulse of engine-sound.

DeFranco ordered the lock off his limbs, slid lower in the hill and moved on toward one with better vantage of the road as it came up from the west—carefully, pausing at irregular intervals as he worked round to get into position to spot that direction. He still had his locator output off. So did everyone else back at the base. HQ had no idea now what sophistication the elves had gained eavesdropping and homing in on the locators, and how much they could pick up with locators of their own. It was only sure that some elvish armaments had gotten more primitive and patchwork, their computer tech had nothing at all wrong with it.

DeFranco settled again on a hillside and listened, wishing he could scratch a dozen maddening itches, and wishing he were safe somewhere else: the whole thing had a disaster-feeling about it from the start, the elves doing something they had never done. He could only think about dead Gamma Company and what might have happened to them before the elves got to them and gassed the bunker and fought their way into it past the few that had almost gotten into their rigs in time—

Had the special op been out there watching too? Had the one at bunker 35 made a wrong choice and had it all started this way the night they died?

The engine-sound was definite. DeFranco edged higher up the new hill and got down flat, belly down on the ridge. He thumbed the magnification plate into the visor and got the hand-held camera's snake-head optics over the ridge in the theory it was a smaller target and a preferable target than himself, with far better nightsight.

The flimsy nightsight image came back of the road, while the sound persisted. It was distant, his ears and the readout advised him, distant yet, racing the first red edge of a murky dawn that showed far off across the plain and threatened daylight out here.

He still sent on transmission. The orders were stringent. The base either had to remain ignorant that there was a vehicle coming up the road or he had to go back personally to report it; and lose track of whatever-it-was out here just when it was getting near enough to do damage. Damn the lack of specials to team out here in the hot spots, and damn the lead-footed reg's: he had to go it alone, decide things alone, hoping Jake and Cat did the right thing in their spot and hoping the other reg's stayed put. And he hated it.

He edged off this hill, keeping it between him and the ruined, shell-pocked road, and began to move to still a third point of vantage, stalking as silently as any man in armor could manage.

And fervently he hoped that the engine sound was not a decoy and that nothing was getting behind him. The elves were deceptive as well and they were canny enemies with extraordinary hearing. He hoped now that the engine-sound had deafened them—but no elf was really fool enough to be coming up the road like this, it was a decoy, it had to be, there was nothing else it could be; and he was going to fall into it nose-down if he was not careful.

He settled belly-down on the next slope and got the camera-snake over the top, froze the suit-joints and lay inert in that overheated ceramic shell, breathing hard through a throat abused by oxygen and whiskey, blinking against a hangover headache to end all headaches that the close focus of the visor readout only made worse. His nose itched. A place on his scalp itched behind his ear. He stopped cataloging the places he itched because it was driving him crazy. Instead he blinked and rolled his eyes, calling up readout on the passive systems, and concentrated on that.

Blink. Blink-blink. Numbers jumped. The computer and come up with a range as it got a passive echo off some hill and checked it against the local topology programmed into its memory. Damn! Close. The computer handed him the velocity. 40KPH with the 4 and the 0 wobbling back and forth into the 30's. DeFranco held his breath and checked his hand-launcher, loading a set of armor-piercing rounds in, quiet, quiet as a man could move. The clamp went down as softly as long practice could lower it.

And at last a ridiculous open vehicle came jouncing whining its way around potholes and shell craters and generally making a noisy and erratic progress. It was in a considerable hurry despite the potholes, and there were elves in it, four of them, all pale in their robes and one of them with the cold glitter of metal around his/her? person, the one to the right of the driver. The car bounced and wove and zigged and zagged up the hilly road with no slacking of speed, inviting a shot for all it was worth.

Decoy?

Suicide?

# Absolute Magnitude MSFA

They were as crazy as elves ever could be, and that was completely. They were headed straight for the hidden bunker, and it was possible that they had gas or a bomb in that car or that they just planned to get themselves shot in a straightforward way, whatever they had in mind, but they were going right where they could do the most damage.

DeFranco unlocked his ceramic limbs, which sagged under his weight until he was down on his belly; and he slowly brought his rifle up, and inched his way up on his belly so it was his vulnerable head over the ridge this time. He shook and he shivered as he reckoned there might be a crater where he was in short order if they had a launcher in that car and he gave them time to set it his way.

But pushing and probing at elves was part of his job. And they were decidedly anomalous. He put a shot in front of the car and half expected elvish suicides on the spot.

The car swerved and jolted into a pothole as the shell hit. It careened to a stop; and he held himself where he was, his heart pounding away and himself not sure why he had put the shot in front and not into the middle of them like a sensible man in spite of HQ's orders.

But the elves recovered from their careening and the car was stopped; and instead of blowing themselves up immediately or going for a launcher of their own, one of the elves bailed out over the side while the helmet-sensor picked up the attempted motor-start. Cough-whine. The car lurched. The elvish driver made a wild turn, but the one who had gotten out just stood there—*stood*, staring up, and lifted his hands together.

DeFranco lay on the hill; and the elves who had gotten the car started swerved out of the pothole it had stuck itself in and lurched off in escape, not suicide—while the one elf in the robe with the metal border just stood there, the first live prisoner anyone had ever taken, staring up at him, self-offered.

"You damn well stand still," he yelled down at the elf on outside com, and thought of the gas and the chemicals and thought that if elves had come up with a disease that also got to humans here was a way of delivering it that was cussed enough and crazy enough for them.

"Human," a shrill voice called up to him. "Human!"

DeFranco was for the moment paralysed. An elf knew what to call them; an elf *talked*. An elf stood there staring up at his hill in the beginnings of dawn and all of a sudden nothing was going the way it ever had between elves and humankind.

At least if it had happened before, no human had ever lived to tell about it.

"Human!" the same voice called—*uu-man*, as best high elvish voices could manage it. The elf was not suiciding. The elf showed no sign of wanting to do that; and deFranco lay and shivered in his armor and felt a damnable urge to wipe his nose which he could not reach or to get up and run for his life, which was a fool's act. Worse, his bladder suddenly told him it was full. Urgently. Taking his mind down to a ridiculous small matter in the midst of trying to get home alive.

The dawn was coming up the way it did across the plain, light spreading like a flood, so fast in the bizarre angle of the land here that it ran like water on the surface of the plain.

And the elf stood there while the light of dawn grew more, showing the elf more clearly than deFranco had ever seen one of the enemy alive, beautiful the way elves were, not in a human way, looking, in its robes, like some cross between man and something spindly and human-skinned and insectoid. The up-tilted ears never stopped moving, but the average of their direction was toward him. Nervous-like.

*What does he want, why does he stand there, why did they throw him out? A target? A distraction?*

Elvish cussedness. DeFranco waited, and waited, and the sun came up; while somewhere in the tunnels there would be troopers wondering and standing by their weapons, ready to go on self-seal against gas or whatever these lunatics had brought.

There was light enough now to make out the red of the robes that fluttered in the breeze. And light enough to see the elf's hands, which looked—which looked, crazily enough, to be tied together.

The dawn came on. Water became an obsessive thought. DeFranco was thirsty from the whiskey and agonized between the desire for a drink from the tube near his mouth or the fear one more drop of water in his system would make it impossible to ignore his bladder; and he thought about it and thought about it, because it was a long wait and a long walk back, and relieving himself outside the suit was a bitch on the one hand and on the inside was a damnable discomfort. But it did get worse. And while life and death tottered back and forth and his fingers clutched the launcher and he faced an elf who was surely up to something, that small decision was all he could think of clearly—it was easier to think of than what wanted thinking out, like what to do and whether to shoot the elf outright, counter to every instruction and every order HQ had given, because he wanted to get out of this place.

But he did not—and finally he solved both problems: took his drink, laid the gun down on the ridge like it was still in his hands, performed the necessary maneuver to relieve himself outside the suit as he stayed as flat as he could. Then he put himself back together, collected his gun and lurched up to his feet with small whines of the assisting joint-locks.

The elf never moved in all of this, and deFranco motioned with the gun. "Get up here . . ." —not expecting the elf to understand either the motion or the shout. But the elf came, slowly, as if the hill was all his (it had been once) and he owned it. The elf stopped still on the slant, at a speaking distance, no more, and stood there with his hands tied (his, deFranco decided, by the height of him). The elf's white skin all but glowed in the early dawn, the bare skin of the face and arms against the dark, metal-edged red of his robe; and the large eyes were set on him and the ears twitched and quivered with small pulses.

"I am your prisoner," the elf said, plain as any human; and deFranco stood there with his heart hammering away at his ribs.

"Why?" deFranco asked. He was mad., he was quite mad and somewhere he had fallen asleep on the hillside, or elvish gas had gotten to him through the open vents—he was a fool to have gone on open circulation; and he was dying back there somewhere and not talking at all.

The elf lifted his bound hands. "I came here to find you."

It was not a perfect accent. It was what an elvish mouth could come up with. It had music in it. And deFranco stood and stared and finally motioned with the gun up the hill. "Move," he said, "walk."

Without demur his prisoner began to do that, in the direction he had indicated.

"What did I do that humans always do?" deFranco asks the elf, and the grave sea-colored eyes flicker with changes. Amusement, perhaps. Or distress.

"You fired at us," says the elf in his soft, song-like voice. "And then you stopped and didn't kill me."

"It was a warning."

"To stop."

# The Scapegoat

"To stop. So simple."

"God, what else do you think?"

The elf's eyes flicker again. There is gold in their depths, and gray. And his ears flick nervously. "DeFranco, deFranco, you still don't know why we fight. And I truly know what you meant. Are you telling me the truth?"

"We never wanted to fight. It was a warning. Even animals, for God's sake—understand a warning shot."

The elf blinks. (And someone in another room stirs in a chair and curses his own blindness. Aggression and the birds. Different tropisms. All the way through the ecostructure.)

The elf spreads his hands. "I don't know what you mean. I never know. What can we know? That you were there for the same reason I was? Were you?"

"I don't know. I don't even know that. *We never wanted a war.* Do you understand that, at least?"

"You wanted us to stop. We told you the same. We sent our ships to hold those places which were ours. And you kept coming to them."

"They were ours."

"Now they are." The elf's face was grave and still. "DeFranco, a mistake was made. A ship of ours fired on yours and this was a mistake. Perhaps it was me who fired. What's in this elf's mind? Fear when a ship will not go away? What's in this human's mind? Fear when we don't go away? It was a stupid thing. It was a mistake. It was in our region. Our—"

"Territory. You think you owned the place."

"We were in it. We were there and this ship came. Say that I wasn't there and I heard how it happened. This was a frightened elf who made a stupid mistake. This elf was surprised by this ship and he didn't want to run and give up the jump point. It was ours. You were in it. We wanted you to go. And you stayed."

"So you blew up an unarmed ship."

"Yes. I did it. I destroyed all the others. You destroyed ours. Our space station. You killed thousands of us. I killed thousands of you."

"Not me and not you elf. That's twenty years, dammit, and you weren't there and I wasn't there—"

"I did it. I say I did. And you killed thousands of us."

"We weren't coming to make a war. We were coming to straighten it out. Do you understand that?"

"We weren't yet willing. Now things are different."

"For God's sake—why did you let so many die?"

"You never gave us defeat enough. You were cruel, deFranco. Not to let us know we couldn't win—that was very cruel. It was very subtle. Even now I'm afraid of your cruelty."

"Don't you understand yet?"

"What do I understand? That you died in thousands? That you make long war. I thought you would kill me on the hill, on the road, and when you called me I had both hope and fear, Hope that you would take me to higher authority. Fear—well, I am bone and nerve, deFranco. And I never knew whether you would be cruel."

The elf walked and walked. He might have been on holiday, his hands tied in front of him, his red robes a-glitter with their gold borders in the dawn. He never tired. He carried no weight of armor; and deFranco went on self-seal and spoke through the mike when he had to give the elf directions.

Germ warfare?

Maybe the elf had a bomb in his gut?

But it began to settle into deFranco that he had done it, he had done it, after years of trying, he had himself a live and willing prisoner, and his lower gut was queasy with outright panic and his knees felt like mush. *What's he up to, what's he doing, why's he walk like that—Damn! They'll shoot him on sight, somebody could see him first and shoot him and I can't break silence— maybe that's what I'm supposed to do, maybe that's how they overran Gamma Company—*

But a prisoner, a prisoner speaking human language—

"Where'd you learn," he asked the elf, "where'd you learn to talk human?"

The elf never turned, never stopped walking. "A prisoner."

"Who? Still alive?"

"No."

*No.* Slender and graceful as a reed and burning as a fire and white as beach sand. *No.* Placidly. Rage rose in deFranco, a blinding urge to put his rifle in that straight spine, to muddy and bloody the bastard and make him as dirty and as hurting as himself; but the professional rose up in him too, and the burned hillsides went on and on as they climbed and they walked, the elf just in front of him.

Until they were close to the tunnels and in no imminent danger of a human misunderstanding.

He turned his ID and locator on; but they would pick up the elf on his sensors too, and that was no good. "It's deFranco," he said over the com. "I got a prisoner. Get HQ and get me a transport."

Silence from the other end. He cut off the output, figuring they had it by now. "Stop," he said to the elf on outside audio. And he stood and waited until two suited troopers showed up, walking carefully down the hillside from a direction that did not lead to any tunnel opening.

"Damn," came Cat's female voice over his pickup. "Da-amn." In a tone of wonder. And deFranco at first thought it was admiration of him and what he had done, and then he knew with some disgust it was wonder at the elf, it was a human woman looking at the prettiest, cleanest thing she had seen in three long years, icy, fastidious Cat, who was picky what she slept with.

And maybe her partner Jake picked it up, because: "Huh," he said in quite a different tone, but quiet, quiet, the way the elf looked at their faceless faces, as if he still owned the whole world and meant to take it back.

"It's Franc," Jake said into the face com, directed at the base. "And he's right, he's got a live one. Damn, you should see this bastard."

## III

*So where's the generals in this war?*

*Why, they're neverneverhere, my friend.*

*Well, what'll we do until they come?*

*Well, neverneverask, my friend.*

"I was afraid too," deFranco says. "I thought you might have a bomb or something. We were afraid you'd suicide if anyone touched you. That was why we kept you sitting all that time outside."

"Ah," says the elf with a delicate move of his hands. "Ah. I thought it was to make me angry. Like all the rest you did. But

# Absolute Magnitude MSFA

you sat with me. And this was hopeful. I was thirsty; I hoped for a drink. That was mostly what I thought about."

"We think too much—elves and humans. We both think too much. *I'd have given you a drink of water, for God's sake.* I guess no one even thought."

"I wouldn't have taken it."

"Dammit, why?"

"Unless you drank with me. Unless you shared what you had. Do you see?"

"Fear of poison?"

"No."

"You mean just by giving it."

"Sharing it. Yes."

"Is pride so much?"

Again the elf touches deFranco's hand as it rests on the table, a nervous, delicate gesture. The elf's ears twitch and collapse and lift again, trembling. "We always go off course here. I still fail to understand why you fight."

"Dammit, I don't understand why you can't understand why a man'd give you a drink of water. Not to hurt you. Not to prove anything. For the love of God, *mercy*, you ever learn that word? Being decent, so's everything decent doesn't go to hell and we don't act like damn animals!"

The elf stares long and soberly. His small mouth has few expressions. It forms its words carefully. "Is this why you pushed us so long? To show us your control?"

"No dammit, to hang onto it! So we can find a place to stop this bloody war. It's all we ever wanted."

"Then why did you start?"

"Not to have you push us!"

A blink of sea-colored eyes. "Now, now we're understanding. We're like each other."

"But you won't stop, dammit, you wouldn't stop, you haven't stopped yet! People are still dying out there on the front, throwing themselves away without a thing to win. Nothing. *That's* not like us."

"In starting war we're alike. But not in ending it. You take years. Quickly we show what we can do. Then both sides know. So we make peace. You showed us long cruelty. And we wouldn't give ourselves up to you. What could we expect?"

"Is it that easy?" DeFranco begins to shiver, clenches his hands together on the tabletop and leans there, arms folded. "You're crazy, elf."

"Angan. My name is Angan."

"A hundred damn scientists out there trying to figure out how you work and it's that damn simple?"

"I don't think so. I think we maybe went off course again. But we came close. We at least see there was a mistake. That's the important thing. That's why I came."

DeFranco looks desperately at his watch, at the minutes ticking away. He covers the face of it with his hand and looks up. His brown eyes show anguish. "The colonel said I'd have three hours. It's going. It's going too fast."

"Yes. And we still haven't found out why. I don't think we ever will. Only you share with me now, deFranco. Here. In our little time."

The elf sat, just sat quietly with his hands still tied, on the open hillside, because the acting CO had sent word no elf was setting foot inside the bunker system and no one was laying hands on him to search him.

But the troopers came out one by one in the long afternoon and had their look at him—one after another of them took the trouble to put on the faceless, uncomfortable armor just to come

out and stand and stare at what they had been fighting for all these years.

"Damn," was what most of them said, in private, on the com, their suits to his suit; "damn," or variants on that theme.

"We got that transport coming in," the reg lieutenant said when she came out and brought him his kit. Then, unlike herself: "Good job, Franc."

"Thanks," deFranco said, claiming nothing. And he sat calmly, beside the prisoner, on the barren, shell-pocked hill by a dead charcoal tree.

Don't shake him, word had come from the CO. Keep him real happy—don't change the situation and don't threaten him and don't touch him.

For fear of spontaneous suicide.

So no one came to lay official claims on the elf either, not even the captain came. But the word had gone out to base and to HQ and up, deFranco did not doubt, to orbiting ships, because it was the best news a front line post had had to report since the war started. Maybe it was dreams of leaving Elfland that brought the regs out here, on pilgrimage to see this wonder. And the lieutenant went away when she had stared at him so long.

Hope. DeFranco turned that over and over in his mind and probed at it like a tongue into a sore tooth. Promotion out of the field. No more mud. No more runs like yesterday. No more, no more, no more, the man who broke the Elfland war and cracked the elves and brought in the key—

—to let it all end. For good. *Winning*. Maybe, maybe—

He looked at the elf who sat there with his back straight and his eyes wandering to this and that, to the movement of wind in a forlorn last bit of grass, the drift of a cloud in Elfland's blue sky, the horizons and the dead trees.

"You got a name?" He was careful asking anything. But the elf had talked before.

The elf looked at him. "Saitas," he said.

"Saitas. Mine's deFranco."

The elf blinked. There was no fear in his face. They might have been sitting in the bunker passing the time of day together.

"Why'd they send you?" DeFranco grew bolder.

"I asked to come."

"Why?"

"To stop the war."

Inside his armor deFranco shivered. He blinked and he took a drink from the tube inside the helmet and he tried to think about something else, but the elf sat there staring blandly at him, with his hands tied, resting placidly in his lap. "How?" deFranco asked, "how will you stop the war?"

But the elf said nothing and deFranco knew he had gone further with that question than HQ was going to like, not wanting their subject told anything about the human wants and intentions before they had a chance to study the matter and study the elf and hold their conferences.

"They came," says deFranco in that small room, "to know what you looked like."

"You never let us see your faces," says the elf.

"You never let us see yours."

"Pride again."

"Don't you know how hard it was to let you lay hands on me? That was the worst thing. You did it again. Like the gunfire. You touch with violence and then expect quiet. But I let this happen. It was what I came to do. And when you spoke to the others for me, that gave me hope."

# The Scapegoat

In time the transport came skimming in low over the hills, and deFranco got to his feet to wave it in. The elf stood up too, graceful and still placid. And waited while the transport sat down and the blades stopped beating.

"Get in," deFranco said than, picking up his scant baggage, putting the gun on safety.

The elf quietly bowed his head and followed instructions, going where he was told. DeFranco never laid a hand on him, except inside, when they had climbed into the dark belly of the transport and guards were waiting there—"Keep your damn guns down," deFranco said on the outside com, because they were light-armed and helmetless. "What are you going to do if he moves, shoot him? Let me handle him. He speaks real good." And to the elf: "Sit down there. I'm going to put a strap across. Just so you won't fall."

The elf sat with no objection, and deFranco got a cargo strap and hooked it into the rail on one side and the other, so there was no way the elf was going to stir or use his hands.

And he sat down himself as the guards took their places and the transport lifted off and carried them away from the elvish city and the front-line base of the hundreds of such bases in the world. It began to fly high and fast when it got to a safe airspace, behind the defenses humans had made about themselves.

There was never fear in the elf. Only placidity. His eyes traveled over the inside of the transport, the dark utilitarian hold, the few benches, the cargo nets, the two guards.

Learning, deFranco thought, still learning everything there was to learn about his enemies.

"Then I was truly afraid," says the elf. "I was most afraid that they would want to talk to me and learn from me. And I would have to die then to no good. For nothing."

"How do you do that?"

"What?"

"Die. Just by wanting to."

"Wanting is the way. I could stop my heart now. Many things stop the heart. When you stop trying to live, when you stop going ahead—it's very easy."

"You mean if you quit trying to live you die. That's crazy."

The elf spreads delicate fingers. "Children can't. Children's hearts can't be stopped that way. You have hearts of children. Without control. But the older you are the easier and easier it is. Until someday it's easier to stop than to go on. When I learned your language I learned from a man named Tomas. He couldn't die. He and I talked—oh, every day. And one day we brought a woman we took. She called him a traitor. That was what she said. Damn traitor. Then Tomas wanted to die and he couldn't. He told me so. It was the only thing he had ever asked of me. Like the water, you see. Because I felt sorry for him I gave him the cup. And to her. Because I had no use for her. But Tomas hated me. He hated me every day. He talked to me because I was all he had to talk to, he would say. Nothing stopped his heart. Until the woman called him a traitor. And then his heart stopped, though it went on beating. I only helped. He thanked me. And damned me to hell. And wished me health with his drink."

"Dammit, elf."

"I tried to ask him what hell was. I think it means being still and trapped. So we fight."

("He's very good with words," someone elsewhere says, leaning near the monitor. "He's trying to communicate something but the words aren't equivalent. He's playing on what he does have.")

"For God's sake," says deFranco then, "is that why they fling themselves on the barriers? Is that why they go on dying? Like birds at cage bars?"

The elf flinched. Perhaps it was the image. Perhaps it was a thought. "Fear stops the heart, when fear has no where to go. We still have one impulse left. There is still our anger. Everything else has gone. At the last even our children will fight you. So I fight for my children by coming here. I don't want to talk about Tomas any more. The birds have him. *You* are what I was looking for."

"Why?" DeFranco's voice shakes. "Saitas—Angan—I'm scared as hell."

"So am I. Think of all the soldiers. Think of things important to you. I think about my home."

"I think I never had one. —This is crazy. It won't work."

"Don't." The elf reaches and holds a brown wrist. "Don't leave me now deFranco."

"There's still fifteen minutes. Quarter of an hour."

"That's a very long time . . . here. Shall we shorten it?"

"No," deFranco says and draws a deep breath. "Let's use it."

At the base where the on-world authorities and the scientists did there time, there were real buildings, real ground-side buildings, which humans had made. When the transport touched down on a rooftop landing pad, guards took the elf one way and deFranco another. It was debriefing: that he expected. They let him get a shower first with hot water out of real plumbing, in a prefabricated bathroom. And he got into his proper uniform for the first time in a year, shaved and proper in his blue beret and brown uniform, fresh and clean and thinking all the while that if a special could get his field promotion it was scented towels every day and soft beds to sleep on and a life expectancy in the decades. He was anxious, because there were ways of snatching credit for a thing and he wanted the credit for this one, wanted it badly because a body could get killed out there on hillsides where he had been for three years and no desk-sitting officer was going to fail to mention him in the report.

"Sit down," the specials major said, and took him through it all; and that afternoon they let him tell it to a reg colonel and a lieutenant general; and again that afternoon they had him tell it to a tableful of scientists and answer questions and questions until he was hoarse and they forgot to feed him lunch. But he answered on and on until his voice cracked and the science staff took pity on him.

He slept then, in clean sheets in a clean bed and lost touch with the war so that he waked terrified and lost in the middle of the night in the dark and had to get his heart calmed down before he realized he was not going crazy and that he really had gotten into a place like this and he really had done what he remembered.

He tucked down babylike into a knot and thought good thoughts all the way back to sleep until a buzzer waked him and told him it was day in this windowless place, and he had an hour to dress again—for more questions, he supposed; and he thought only a little about his elf, *his* elf, who was handed on to the scientists and the generals and the AlSec people, and stopped being his personal business.

"Then," says the elf, "I knew you were the only one I met I could understand. Then I sent for you."

"I still don't know why."

"I said it then. We're both soldiers."

"You're more than that."

# Absolute Magnitude MSFA

"Say that I made one of the great mistakes."

"You mean at the beginning? I don't believe it."

"It could have been. Say that I commanded the attacking ship. Say that I struck your people on the world. Say that you destroyed our station and our cities. We are the makers of mistakes. Say this of ourselves."

"I," the elf said, his image on the screen much the same as he had looked on the hillside, straight-spined, red-robed—only the ropes elves had put on him had left purpling marks on his wrists, on the opalescing white of his skin, "I'm clear enough, aren't I?" The trooper accent was strange coming from a delicate elvish mouth. The elf's lips were less mobile. His voice had modulations, like singing, and occasionally failed to keep its tones flat.

"It's very good," the scientist said, the man in the white coveralls, who sat at a small desk opposite the elf in a sterile white room and had his hands laced before him. The camera took both of them in, elf and swarthy Science Bureau xenologist. "I understand you learned from prisoners."

The elf seemed to gaze into infinity. "We don't want to fight anymore."

"Neither do we. Is this why you came?"

A moment the elf studied the scientist, and said nothing at all.

"What's your people's name?" the scientist asked.

"You call us elves."

"But we want to know what you call yourselves. What you call this world."

"Why would you want to know that?"

"To respect you. Do you know that word, respect?"

"I don't understand it."

"Because what you call this world and what you call yourselves *is* the name, the right name, and we want to call you right. Does that make sense?"

"It makes sense. But what you call us is right too, isn't it?"

"Elves is a made-up word, from our homeworld. A myth. Do you know *myth*? A story. A thing not true."

"Now it's true, isn't it?"

"Do you call your world Earth? Most people do."

"What you call it is its name."

"We call it Elfland."

"That's fine. It doesn't matter."

"Why doesn't it matter?"

"I've said that."

"You learned our language very well. But we don't know anything of yours."

"Yes."

"Well, we'd like to learn. We'd like to be able to talk to you your way. It seems to us this is only polite. Do you know *polite*?"

"No."

"A prolonged silence. The scientist's face remained bland as the elf's. "You say you don't want to fight any more. Can you tell us how to stop the war?"

"Yes. But first I want to know what your peace is like. What, for instance, will you do about the damage you've caused us?"

"You mean reparations."

"What's that mean?"

"Payment."

"What do you mean by it?"

The scientist drew a deep breath. "Tell me. Why did your people give you to one of our soldiers? Why didn't they just call on the radio and say they wanted to talk?"

"This is what you'd do."

"It's easier, isn't it? And safer."

The elf blinked. No more than that.

"There was a ship a long time ago," the scientist said after a moment. "It was a human ship minding its own business in a human lane, and elves came and destroyed it and killed everyone in it. Why?"

"What do you want for this ship?"

"So you understand about payment. Payment's giving something for something."

"I understand." The elvish face was guileless, masklike, the long eyes like the eyes of a pearl-skinned buddha. A saint. "What will you ask? And how will peace be with you be? What do you call peace?"

"You mean you don't think our word for it is like your word for it?"

"That's right."

"Well, that's an important thing to understand, isn't it? Before we make agreements. Peace means no fighting."

"That's not enough."

"Well, it means being safe from your enemies."

"That's not enough."

"What is enough?"

The pale face contemplated the floor, something elsewhere.

"What is enough, Saitas?"

"The elf only stared at the floor, far, far away from the questioner. "I need to talk to deFranco."

"Who?"

"DeFranco." The elf looked up. "DeFranco brought me here. He's a soldier; he'll understand me better than you. Is he still here?"

The colonel reached and cut the tape off. She was SurTAC Agnes Finn was the name on her desk. She could cut your throat a dozen ways, and do sabotage and mayhem from the refinements of computer theft to the gross tactics of explosives; she would speak a dozen languages, know every culture she had ever dealt with from the inside out, integrating the Science Bureau and the military. And more, she was a SurTAC *colonel*, which sent the wind up deFranco's back. It was not a branch of the service that had many high officers; you had to survive more than ten field missions to get your promotion beyond the ubiquitous and courtesy-titled lieutenancy. And this one had. This was Officer with a capital O, and whatever the politics in HQ were, this was a rock around which a lot of other bodies orbited: *this* probably took her orders from the Joint Command, which was months and months away in its closest manifestation. And that meant next to no orders and wide discretion, which was what SurTacs did. Wild card. Joker in the deck. There were the regs; there was special ops, loosely attached; there were the spacers, Union and Alliance, and Union regs were part of that; beyond and above, there was AlSec and Union Intelligence; and then there were the Special Services, and that was this large-boned, red-haired woman who probably had a scant handful of humans and no knowing what else was in her direct command, a handful of SurTacs loose in Elfland, and all of them independent operators and as much trouble to the elves as a reg base could be.

DeFranco knew. He had tried that route once. He knew more than most what kind it took to survive the training, let alone the requisite ten missions to get promoted out of the field,

# The Scapegoat

and he knew the wit behind that freckled, weathered face and knew it ate special ops lieutenants for appetizers.

"How did you make such an impression on him, lieutenant?"

"I didn't try to," deFranco said carefully. "Ma'am. I just tried to keep him calm and get in with him alive the way they said. But I was the only one who dealt with him out there, we thought that was safest; maybe he thinks I'm more than I am."

"I compliment you on the job." There was a certain irony in that, he was sure. No SurTac had pulled off what he had, and he felt the slightest tension there.

"Yes Ma'am."

"Yes, Ma'am. There's always the chance, you understand, that you've brought us an absolute lunatic. Or the elves are going an unusual route to lead us into a trap. Or this is an elf who's not too pleased about being tied up and dumped on us, and he wants to get even. Those things occur to me."

"Yes Ma'am." DeFranco thought about all those things, face to face with the colonel and trying to be easy as the colonel had told him to be. But the colonel's thin face was sealed and forbidding as an elf's.

"You know what they're doing out there right now? Massive attacks. Hitting that front near 45 with everything they've got. The Eighth's pinned. We're throwing air in. And they've got somewhere over two thousand casualties out there and airstrikes don't stop all of them. Delta took a head-on assault and turned it. There were casualties. Trooper named Herse. Your unit."

*Dibs.* O God. "Dead?"

"Dead." The colonel's eyes were bleak and expressionless. "Word came in. I know it's more than a stat. But that's what's going on. We've got two signals coming from the elves. And we don't know which one's valid. We have ourselves an alien who claims credentials—and comes with considerable effort from the same site as the attack."

*Dibs.* Dead. There seemed a chill in the air, in this safe, remote place far from the real world, the mud, the bunkers. Dibs had stopped living yesterday. This morning. Sometime. Dibs had gone and the world never noticed.

"Other things occur to the science people," the colonel said, "one of which galls the hell out of them, deFranco, is what the alien just said. *DeFranco can understand me better.* Are you with me lieutenant?"

"Yes Ma'am."

"So the Bureau went to the Secretary, the Secretary went to the Major General on the com; all this at fifteen hundred yesterday; and *they* hauled me in on it at two this morning. You know how many noses you've got out of joint, lieutenant? And what the level of concern is about that mess out there on the front?"

"Yes Ma'am."

"I'm sure you hoped for a commendation and maybe better, wouldn't that be it? Wouldn't blame you. Well, I got my hands into these, and I've opted you under my orders, lieutenant, because I can do that and high command's just real worried the Bureau's going to poke and prod and that elf's going to leave us on the sudden for elvish heaven. So let's just keep him moderately happy. He wants to talk to you. What the Bureau wants to tell you, but I told them *I'd* make it clear, because they'll talk tech at you and I want to be sure you've got it—it's just real simple: you're dealing with an alien; and you'll have noticed what he says doesn't always make sense."

"Yes Ma'am."

"Don't yes, ma'am me, lieutenant, dammit; just talk to me and look me in the eye. We're talking about communication here."

"Yes—" He stopped short of the ma'am.

"You've got a brain, deFranco, it's all in your record. You almost went Special Services yourself, that was your real ambition, wasn't it? But you had this damn psychotic fear of taking ultimate responsibility. And a wholesome fear of ending up with a commendation, posthumous. Didn't you? It washed you out, so you went special op where you could take orders from someone else and still play bloody hero and prove something to yourself—am I right? I ought to be; I've got your psych record over there. Now I've insulted you and your sitting there turning red. But I want to know what I'm dealing with. We're in a damn bind. We've got casualties happening out there. Are you and I going to have trouble?"

"No. I understand."

"Good. Very good. Do you think you can go into a room with the elf and talk the truth out of him? More to the point, can you *make* a decision, can you go in there knowing how much is riding on your back?"

"I'm not a—"

"I don't care what you are, deFranco. What I want to know is whether *negotiate* is even in the elf's vocabulary. I'm assigning you to guard over there. In the process I want you to sit down with him one to one and just talk away. That's all you've got to do. And because of your background maybe you'll do it with some sense. But maybe if you just talk for John deFranco and try to get that elf to deal, that's the best thing. You know when a government sends out a negotiator—or anything like—that individual's not average. That individual's probably the smartest, cannier, hard-nosed bastard they've got, and he probably cheats at dice. We don't know what this bastard's up to or what he thinks like, and when you sit down with him you're talking to a mind that knows a lot more about humanity than we know about elves. You're talking to an elvish expert who's here playing games with us. Who's giving us a real good look-over. You understand that? What do you say about it?"

"I'm scared of this."

"That's real good. You know we're not sending in the brightest, most experienced human on two feet. And that's exactly what that rather canny elf has arranged for us to do. You understand that? He's playing us like a keyboard this far. And how do you cope with that, Lt. deFranco?"

"I just ask him questions and answer as little as I can."

"Wrong. You let him talk. You be real *careful* what you ask him. What you ask is as dead a giveaway as what you tell him. Everything you do and say is cultural. If he's good he'll drain you like a sponge." The colonel bit her lips. "Damn, you're not going to be able to handle that, are you?"

"I understand what you're warning me about, colonel. I'm not sure I can do it, but I'll try."

"Not sure you can do it. *Peace* may hang on this. And several billion lives. Your company, out there on the line. Put it on that level. And you're scared and you're showing it, lieutenant; you're too damned open, no wonder they washed you out. Got no hard center to you, no place to go when I embarrass the hell out of you, and *I'm* on your side. You're probably a damn good special ops, brave as hell, I know, you've got commendations in the field. And that shell-shyness of yours probably makes you drive real hard when you're in trouble. Good man. Honest. If the elf wants a human specimen, we could do worse. You just go in there, son, and

# Absolute Magnitude MSFA

you talk to him and you be your nice self, and that's all you've got to do."

"We'll be bugged." DeFranco stared at the colonel deliberately, trying to dredge up some self-defense, like the impression he was no complete fool.

"Damn sure you'll be bugged. Guards right outside if you want them. But you startle that elf I'll fry you."

"That isn't what I meant. I meant—I meant if you could get him to talk there'd be an accurate record."

"Ah. Well. Yes. There will be absolutely. And yes, I'm a bastard lieutenant, same as that elf is, beyond a doubt. And because I'm on your side I want you as prepared as I can get you. But I'm going to give you all the backing you need—you want anything, you just tell the staff and they better jump to do it. I'm giving you carte blanche over there in the Science Wing. Their complaints can come to this desk. You just be yourself with him, watch yourself a little, don't get taken and don't set him off."

"Yes ma'am."

Another slow, consuming stare and nod.  
He was dismissed.

## IV

*So where's the hole we're digging end?*

*Why, it's neverneverdone, my friend.*

*Well, why's it warm at the other end?*

*Well, hell's neverneverfar, my friend.*

"This colonel," say the elf, "it's her soldiers outside."

"That's the one," says deFranco.

"It's not the highest rank."

"No. It's not. Not even on this world." DeFranco's hands open and close on each other, white-knuckled. His voice stays calm. "But it's a lot of power. She won't be alone. There are others she's acting for. They sent me here. I've figured that now."

"Your dealing confuses me."

"Politics. It's all politics. Higher-ups covering their—"

DeFranco rechooses his words. "Some things they have to abide by. They have to do. Like if they don't take a peace offer—that would be trouble back home. Human space is big. But a war—humans want it stopped. I know that. With humans, you can't quiet a mistake down. We've got too many separate interests . . . We got scientists, and a half dozen different commands—"

"Will they stop fighting?"

"Yes. My side will. I know they will." DeFranco clenches his hands tighter as if the chill has gotten to his bones. "If we can give them something, some solution. You have to understand what they're thinking of. If there's a trouble anywhere, it can grow. There might be others out here, you ever think of that? What if some other species just—wanders through? It's happened. And what if our little war disturbs them. We live in a big house, you know that? You're young, you, with your ships, you're a young power out in space. God help us, we've made mistakes, but this time the first one wasn't ours. We've been trying to stop this. All along, we've been trying to stop this."

"You're what I trust," says the elf. "Not your colonel. Not your peace. You. Words aren't the

belief. What you do—that's the belief. What you do will show us."

"I can't!"

"I can. It's important enough to me and not to you. *Our little war*. I can't understand how you think that way."

"Look at that!" DeFranco waves a desperate hand at the room, the world. Up. "It's so big! Can't you see that? And one planet, one ball of rock. It's a *little war*. Is it worth it all? Is it worth such damn stubbornness? Is it worth dying in?"

"Yes," the elf says simply, and the sea-green eyes and the white face have neither anger nor blame for him.

DeFranco saluted and got out and waited until the colonel's orderly caught up with him in the hall and gave his escort the necessary authorizations, because *no one* wandered this base without an escort. (But the elves are two hundred klicks out *there*, deFranco thought; and who're we fighting anyway?) In the halls he saw the black of Union elite and the blue of Alliance spacers and the plain drab of the line troop officers, and the white and pale blue of the two Science Bureaus; while everywhere he felt the tenuous peace—damn, maybe we *need* this war, it's keeping humanity talking to each other, they're all fat and sleek and mud never touched them back here— But there was haste in the hallways. But there were tense looks on faces of people headed purposefully to one place and the other, the look of a place with something on its collective mind, with silent, secret emergencies passing about him—the *attack on the lines*, he thought, and remembered another time that attack had started on one front and spread rapidly to a dozen; and missiles had gone. And towns had died.

And the elvish kids, the babies in each others' arms and the birds fluttering down; and Dibs—Dibs lying in his armor like a broken piece of machinery—when a shot got you, it got the visor and you had no face and never knew it; or it got the joints and you bled to death trapped in the failed shell, you just lay there and bled: he had heard men and women die like that, still in contact on the com, talking to their buddies and going out alone, alone in that damn armor that cut off the sky and the air—

They brought him down tunnels that were poured and cast overnight, *that* kind of construction, which they never got out on the Line. There were bright lights and there were dry floors for the fine officers to walk on; there was, at the end, a new set of doors where guards stood with weapons ready—

—against *us*? DeFranco got that sense of unreality again, blinked as he had to show his tags and ids to get past even with the colonel's orders directing his escort.

Then they let him through, and further, to another hall with more guards. AlSec MP's. Alliance Security. The intelligence and Special Services. The very air here had a chill about it, with only those uniforms in sight. *They* had the elf. Of course they did. He was diplomatic property and the regs and the generals had nothing to do with it. He was in Finn's territory. Security and Surface Tactical Command, that the reg command only controlled from the top, not inside the structure. Finn had a leash, but she took no orders from sideways in the structure. Not even from AlSec. Check and balance in a joint command structure too many light-years from home to risk petty dictatorships. He had just crossed a line and might as well have been on another planet.

And evidently a call had come ahead of him, because there were Science Bureau types here too, and the one who passed him through hardly glanced at his ID. It was his face the man

# The Scapegoat

looked at, long and hard; and it was the Xen-bureau interviewer who had been on the tape.

"Good luck," the man said. And a SurTac major arrived dour-faced, a black man in the SurTac's khaki, who did not look like an officer-type. He took the folder of authorizations and looked at it and at deFranco with a dark-eyed stare and a set of a square, well-muscled jaw. "Colonel's given you three hours, lieutenant. Use it."

"We're more than one government," says deFranco to the elf, quietly, desperately. "We've fought in the past. We had wars. We made peace and we work together. We may fight again but everyone hopes not and it's less and less likely. War's expensive. It's too damn open out here, that's what I'm trying to tell you. You start a war and you don't know who else might be listening."

The elf leans back in his chair, one arm on the back of it. His face is solemn as ever as he looks at deFranco. "You and I, you-and-I. The world was whole until you found us. How can people do things that don't make sense? The *whole* thing makes sense, the parts of the thing are crazy. You can't put part of one thing into another, leaves won't be feathers, and your mind can't be our mind. I see our mistakes. I want to take them away. Then elves won't have theirs and you won't have yours. But you call it a little war. The lives are only a few. You have so many. You like your mistake. You'll keep it. You'll hold it in your arms. And you'll meet others with it. But they'll see it, won't they, when they look at you?"

"It's crazy!"

"When we met you in it, we assumed *we*. That was our first great mistake. But it is yours too."

DeFranco walked into the room where they kept the elf, a luxurious room, a groundling civ's kind of room, with a bed and a table and two chairs, and some kind of green and yellow pattern on the bedclothes, which were ground-style, free-hanging. And amid this riot of life-colors the elf sat crosslegged on the bed, placid, not caring that the door opened or someone came in—until a flicker of recognition seemed to take hold and grow. It was the first humanlike expression, the elf had ever used in deFranco's sight. Of course there were cameras recording it, recording everything. The colonel had said so and probably the elf knew it too.

"Saitas. You wanted to see me."

"DeFranco." The elf's face settled again into inscrutability.

"Shall I sit down?"

There was no answer. DeFranco waited an uncertain moment, then settled into one chair at the table and leaned his elbows on the white plastic surface.

"They treating you all right?" deFranco asked, for the cameras, deliberately, for the colonel—(*damn you, I'm not a fool, I can play your damn game, colonel, I did what your SurTacs failed at, didn't I? So watch me.*)

"Yes," the elf said. His hands rested loosely in his red-robed lap. He looked down at them and up again.

"I tried to treat you all right. I thought I did."

"Yes."

"Why'd you ask for me?"

"I'm a soldier," the elf said, and put his legs over the side of the bed and stood up. "I know that you are. I think you understand me more."

"I don't know about that. But I'll listen." The thought crossed his mind of being held hostage, of some irrational violent behavior, but he pretended it away and waved a hand at

the other chair. "You want to sit down? You want something to drink? They'll get it for you."

"I'll sit down with you." The elf came and took the other chair, and leaned his elbows on the table. The bruises on his wrists showed plainly under the light. "I thought you might have gone back to the front by now."

"They gave me a little time. I mean, there's—"

(Don't talk to him, the colonel had said. Let him talk.)

"—three hours. A while. You had a reason you wanted to see me. Something you wanted? Or just to talk? I'll do that too."

"Yes," the elf said slowly, in his lilting lisp. And gazed at him with sea-green eyes. "Are you young, deFranco? You make me think of a young man."

It set him off balance. "I'm not all that young."

"I have a son and a daughter. Have you?"

"No."

"Parents."

"Why do you want to know?"

"Have you parents?"

"A mother. Long away from here." He resented the questioning. Letters were all Nadya deFranco got, and not enough of them, and thank God she had closer sons. DeFranco sat staring at the elf who had gotten past his guard in two quick questions and managed to hit a sore spot; and he remembered what Finn had warned him. "You elf?"

"Living parents. Yes. A lot of relatives."

"Damn, what trooper had they stripped getting that part of human language? Whose soul had they gotten into?"

"What are you, Saitas? Why'd they hand you over like that?"

"To make peace. So the Saitas always does."

"Tied you up like that?"

"I came to be your prisoner. You understood that."

"Well, it worked. I might have shot you; I don't say I would've, but I might, except for that. It was a smart move, I guess it was. But hell, you could have called ahead. You come up on us in the dark—you looked to get your head blown off. Why didn't you use the radio?"

A blink of sea-green eyes. "Others ask me that. Would you have come then?"

"Well, someone would. Listen, you speak at them in human language and they'd listen and they'd arrange something a lot safer."

The elf stared, full of his own obscurities.

"Come on, they throw you out of there? They your enemies?"

"Who?"

"The one who left you there on that hill."

"No."

"Friends, huh? Friends let you out there?"

"They agreed with me. I agreed to be there. I was most afraid you'd shoot them. But you let them go."

"Hell, look, I just follow orders."

"And orders led you to let them go?"

"No. They say to talk if I ever get the chance. Look, me, personally, I never wanted to kill you guys. I wouldn't, if I had the choice."

"But you do."

"Dammit, you took out our ships. Maybe that wasn't personal on your side either, but we sure as hell can't have you doing it as a habit. All you ever damn well had to do was go away and let us alone. You hit a world, elf. Maybe not much of one, but you killed more than a thousand people on that first

# Absolute Magnitude MSFA

ship. Thirty thousand at that base, good God, don't sit there looking at me like that!"

"It was a mistake."

"Mistake." DeFranco found his hands shaking. No. Don't raise the voice. Don't lose it. (Be your own nice self, boy. Patronizingly. The colonel knew he was far out of his depth. And he knew.) "Aren't most wars mistakes?"

"Do you think so?"

"If it is, can't we stop it?" He felt the attention of unseen listeners, diplomats, scientists—himself, special ops, talking to an elvish negotiator and making a mess of it all, losing everything. (Be your own nice self—The colonel was crazy, the elf was, the war and the world were and he lumbered ahead desperately, attempting subtlety, attempting a charicated simplicity toward a diplomat and knowing the one as transparent as the other.) "You know all you have to do is say quit and there's ways to stop the shooting right off, ways to close it all down and then start talking about how we settle this. You say that's what you came to do. You're in the right place. All you have to do is get your side to stop. They're killing each other out there, do you know that? You come in here to talk peace. And they're coming at us all up and down the front. I just got word I lost a friend of mine out there. God knows what by now. It's no damn sense. If you can stop it, then let's stop it."

"I'll tell you what our peace will be." The elf lifted his face placidly, spread his hands. "There is a camera, isn't there? At least a microphone. They do listen."

"Yes. They've got camera and mike. I know they will."

"But your face is what I see. Your face is all human faces to me. They can listen, but I talk to you. Only to you. And this is our peace. The fighting will stop, and we'll build ships again and we'll go into space, and we won't be enemies. The mistake won't exist. That's the peace I want."

"So how do we do that?" (Be your own nice self, boy—DeFranco abandoned himself. Don't see the skin, don't see the face alien-like, just talk, talk like to a human, don't worry about protocols. Do it boy.) "How do we get the fighting stopped?"

"I've said it. They've heard."

"Yes. They have."

"They have two days to make this peace."

DeFranco's palms sweated. He clenched his hands on the chair. "Then what happens?"

"I'll die. The war will go on."

(God, now what do I do, what do I say? How far can I go?) "Listen, you don't understand how long it takes us to make up our minds. We need more than two days. They're dying out there, your people are killing themselves against our lines, and it's all for nothing. Stop it now. Talk to them. Tell them we're going to talk. Shut it down."

The slitted eyes blinked, remained in their buddha-like abstraction, looking askance into infinity. "DeFranco, there has to be payment."

(Think, deFranco, think. Ask the right things.) "What payment? Just exactly who are you talking for? All of you? A city? A district?"

"One peace will be enough for you—won't it? You'll go away. You'll leave and we won't see each other until we've built our ships again. You'll begin to go—as soon as my peace is done."

"Build the ships, for God's sake. And come after us again?"

"No. The war is a mistake. There won't be another war. This is enough."

"But would everyone agree?"

"Everyone does agree. I'll tell you my real name. It's Angan. Angan Anassidi. I'm forty-one years old. I have a son named Agaita; a daughter named Siadi; I was born in a town named Daogissihi, but it's burned now. My wife is Llaithai Sohail, and she was born in the city where we live now. I'm my wife's only husband. My son is aged twelve, my daughter nine. They live in the city with my wife alone now and her parents and mine." The elvish voice acquired a subtle music on the names that lingered to obscure his other speech. "I've written—I told them I would write everything for them. I write in your language."

"Told who?"

"The humans who asked me. I wrote it all."

DeFranco stared at the elf, at a face immaculate and distant as a statue. "I don't think I follow you. I don't understand. We're talking about the front. We're talking about maybe that wife and kids being in danger, aren't we? About maybe my friends getting killed out there. About shells falling and people getting blown up. Can we do anything about it?"

"I'm here to make the peace. Saitas is what I am. A gift to you. I'm the payment."

DeFranco blinked and shook his head. "Payment? I'm not sure I follow that."

For a long moment there was quiet. "Kill me," the elf said. "That's why I came. To be the last dead. The saitas. To carry the mistake away."

"Hell, no. No. We don't shoot you. Look, elf—all we want is to stop the fighting. We don't want your life. Nobody wants to kill you."

"DeFranco, we haven't any more resources. We want a peace."

"So do we. Look, we just make a treaty—you understand treaty?"

"I'm the treaty."

"A treaty, man, a treaty's a piece of paper. We promise peace to each other and not to attack us, we promise not to attack you, we settle our borders, and you just go home to that wife and kids. And I go home and that's it. No more dying. No more killing."

"No." The elf's eyes glistened within the pale mask. "No, deFranco, no paper."

"We make peace with paper and ink. We write peace out and we make agreements and it's good enough; we do what we say we'll do."

"Then write it in your language."

"You have to sign it. Write your name on it. And keep the terms. That's all, you understand that?"

"Two days. I'll sign your paper. I'll make your peace. It's nothing. Our peace is in me. And I'm here to give it."

"Dammit, we don't kill people for treaties."

The sea-colored eyes blinked. "Is one so hard and millions so easy?"

"It's different."

"Why?"

"Because—because—look, war's for killing; peace is for staying alive."

"I don't understand why you fight. Nothing you do makes sense to us. But I think we almost understand. We talk to each other. We use the same words. DeFranco, don't go on killing us."

"Just you. Just you, is that it? Dammit, that's crazy!"

"A cup would do. Or a gun. Whatever you like. DeFranco, have you never shot us before?"

# The Scapegoat

"God, it's not the same!"

"You say paper's enough for you. That paper will take away all your mistakes and make the peace. But paper's not enough for us. I'd never trust it. You have to make my peace too. So both sides will know it's true. But there has to be a saitas for humans. Someone has to come to us."

DeFranco sat there with his hands locked together. "You mean just go to your side and get killed."

"The last dying."

"Dammit, you *are* crazy. You'll wait a long time for that, elf."

"You don't understand."

"You're damn right I don't understand. Damn bloody-minded lunatics!" DeFranco shoved his hands down, needing to get up, to get away from that infinitely patient and not human face, that face that had somehow acquired subtle expressions, that voice which made him forget where the words had first come from. And then he remembered the listeners, the listeners taking notes, the colonel staring at him across the table. Information. Winning was not the issue. Questions were. Finding out what they could. Peace was no longer the game. They were dealing with the insane, with minds there was no peace with. Elves that died to spite their enemies. That suicided for a whim and thought nothing about wiping out someone else's life.

He stayed in his chair. He drew another breath. He collected his wits and thought of something else worth learning. "What'd you do with the prisoners you learned the language from, huh? Tell me that?"

"Dead. We gave them the cup. One at a time they wanted it."

"Did they."

Again the spread of hands, of graceful fingers. "I'm here for all the mistakes. Whatever will be enough for them."

"Dammit, elf!"

"Don't call me that." The voice acquired a faint music. "Remember my name. Remember my name. DeFranco—"

He had to get up. He had to get up and get clear of the alien, get away from that stare. He thrust himself back from the table and looked back, found the elf had turned. Saitas-Angan smelled of something dry and musty, like spice. The eyes never opened wide, citrine slits. They followed him.

"Talk to me," the elf said. "Talk to me, deFranco."

"About what? About handing one of us to you? It won't happen. It bloody won't happen. We're not crazy."

"Then the war won't stop."

"You'll bloody die, every damn last one of you!"

"If that's your intention," the elf said, "yes. We don't believe you want peace. We haven't any more hope. So I come here. And the rest of us begin to die. Not the quiet dying. Our hearts won't stop. We'll fight."

"Out there on the lines, you mean."

"I'll die as long as you want, here. I won't stop my heart. The saitas can't."

"Dammit, that's not what we're after! That's not what we want."

"Neither can you stop yours. I know that. We're not cruel. I still have hope in you. I still hope."

"It won't work. We *can't* do it, do you understand me? It's against our law. Do you understand law?"

"Law."

"Right and wrong. Morality. For God's sake, killing's wrong."

"Then you've done a lot of wrong. You have your mistake too. DeFranco. You're a soldier like me. You know what your life's value is."

"You're damn right I know. And I'm still alive."

"We go off the course. We lose ourselves. You'll die for war but not for peace. I don't understand."

"I don't understand. You think we're just going to pick some poor sod and send him to you."

"You, deFranco. I'm asking you to make the peace."

"Hell." He shook his head, walked away to the door, colonel-be-hanged. His hand shook on the switch and he was afraid it showed. End the war. "The hell you say."

The door shot open. He expected guards. Expected—

—It was open corridor, clean prefab, tiled floor. On the tiles lay a dark, round object, with peculiar symmetry and ugliness of things meant to kill. Grenade. Intact.

His heart jolted. He felt the doorframe against his side and the sweat ran cold on his skin, his bowels went to water. He hung there looking at it and it did not go away. He began to shake all over as if it were already armed.

"Col. Finn." He turned around in the doorway and yelled at the unseen monitors. "Col. Finn—get me out of here!"

No one answered. No door opened. The elf sat there staring at him in the closest thing to distress he had yet showed.

"Colonel! Colonel, damn you!"

More of silence. The elf rose to his feet and stood there staring at him in seeming perplexity, as if he suspected he witnessed some human madness.

"They left us a present," deFranco said. His voice shook and he tried to stop it. "They left us a damn present, elf. And they locked us in."

The elf stared at him; and deFranco went out into the hall, bent and gathered up the deadly black cylinder—held it up. "It's one of yours, elf."

The elf stood there in the doorway. His eyes looking down were the eyes of a carved saint; and looking up they showed color against his white skin. A long nailless hand touched the doorframe as the elf contemplated him and human treachery.

"Is this their way?"

"It's not mine." He closed his hand tightly on the cylinder, in its deadliness like and unlike every weapon he had ever handled. "It's damn well not mine."

"You can't get out."

The shock had robbed him of his wits. For a moment he was not thinking. And then he walked down the hall to the main door and tried it. "Locked." He called back to the elf, who had joined him in his possession of the hall. The two of them together. DeFranco walked back again, trying doors as he went. He felt strangely numb. The hall became surreal, his elvish companion belonging like him, elsewhere. "Dammit, what have they got in their minds?"

"They've agreed," the elf said. "They've agreed, deFranco."

"They're out of their minds."

"One door still closes, doesn't it? You can protect your life."

"You still bent on suicide?"

"You'll be safe."

"Damn them!"

The elf gathered his arms about him as if he too felt the chill. "The colonel gave us a time. Is it past?"

"Not bloody yet."

"Come sit with me. Sit and talk. My friend."

"Is it time?" asks the elf, as deFranco looks at his watch again. And deFranco looks up.

# Absolute Magnitude MSFA

"Five minutes. Almost." DeFranco's voice is hoarse.

The elf has a bit of paper in his hand. He offers it. A pen lies on the table between them. Along with the grenade. "I've written your peace. I've put my name below it. Put yours."

"I'm nobody. I can't sign a treaty, for God's sake." DeFranco's face is white. His lips tremble. "What did you write?"

"Peace," says the elf. "I just wrote peace. Does there have to be more?"

DeFranco takes it. Looks at it. And suddenly he picks up the pen and signs it too, a furious scribble. And lays the pen down. "There," he says. "There, they'll have my name on it." And after a moment: "If I could do the other—o God, I'm scared. I'm scared."

"You don't have to go to my city," says the elf, softly. His voice wavers like deFranco's. "DeFranco—here, here they record everything. Go with me. Now. The record will last. We have our peace, you and I, we make it together, here, now. The last dying. Don't leave me. And we can end this war."

DeFranco sits a moment. Takes the grenade from the middle of the table, extends his hand with it across the center. He looks nowhere but at the elf. "Pin's yours," he says. "Go on. You pull it, I'll hold it steady."

The elf reaches out his hand, takes the pin and pulls it, quickly.

DeFranco lays the grenade down on the table between them, and his mouth moves in silent counting. But then he looks up at the elf and the elf looks at him. DeFranco manages a smile. "You got the count on this thing?"

The screen breaks up.

The staffer reached out her hand and cut the monitor, and Agnes Finn stared past the occupants of the office for a time. Tears came seldom to her eyes. They were there now, and she chose not to look at the board of inquiry who had gathered there.

"There's a mandatory inquiry," the man from the reg command said. "We'll take testimony from the major this afternoon."

"Responsibility's mine," Finn said.

It was agreed on the staff. It was prearranged, the interview, the formalities.

Someone had to take the direct hit. It might have been a SurTac. She would have ordered that too, if things had gone

differently. High Command might cover her. Records might be wiped. A tape might be classified. The major general who had handed her the mess and turned his back had done it all through subordinates. And he was clear.

"The paper, colonel."

She looked at them, slid the simple piece of paper back across the desk. The board member collected it and put it into the folder. Carefully.

"It's more than evidence," she said. "That's a treaty. The indigenes know it is."

They left her office, less than comfortable in their official search for blame and where, officially, to put it.

She was already packed. Going back on the same ship with an elvish corpse, all the way to Pell and Downbelow. There would be a grave there onworld.

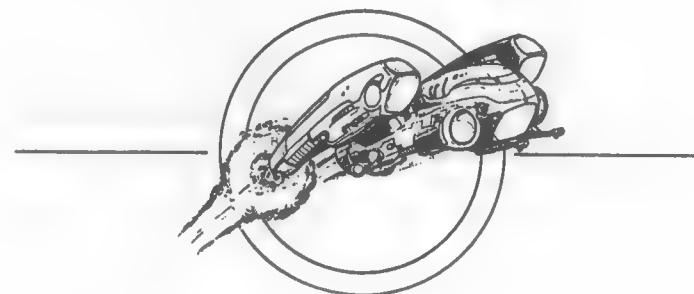
It surprised no one when the broadcast tape got an elvish response. Hopes rose when it got the fighting stopped and brought an elvish delegation to the front; but there was a bit of confusion when the elves viewed both bodies and wanted deFranco's. Only deFranco's.

And they made him a stone grave there on the shell-pocked plain, a stone monument; and they wrote everything they knew about him. *I was John deFranco, a graven plaque said. I was born on a space station twenty light years away. I left my mother and my brothers. The friends I had were soldiers and many of them died before me. I came to fight and I died for the peace, even when mine was the winning side. I died at the hand of Angan Anassidi, and he died at mine, for the peace; and we were friends at the end of our lives.*

Elves—suili was one name they called themselves—came to this place and laid gifts of silk ribbons and bunches of flowers—flowers, in all that desolation; and in their thousands they mourned and they wept in their own tearless, expressionless way.

For their enemy.

One of their own was on his way to humankind. For humankind to cry for. *I was Angan Anassidi, his grave would say; and all the right things. Possibly no human would shed a tear. Except the veterans of Elfland, when they came home, if they got down to the world—they might, like Agnes Finn, in their own way and for their own dead, in front of an alien shrine.*



## OUR STORIES CONTINUE

by  
Gregory Feeley

Copyright ©1994

*Green Mars* by Kim Stanley Robinson  
Bantam, 535 pages, \$22.95 hardcover,  
\$12.95 trade paperback.

*Red Mars* by Kim Stanley Robinson  
Bantam, 572 pp., \$5.99 mass paperback.

*Red Mars* and *Green Mars*, first volumes of a projected trilogy, have enjoyed the good fortune that attends only the most fortuitous conjunctions of the literary heavens: the two novels, although published in consecutive years (and each a year earlier in England than here), managed by the oddments of prize eligibility to win the Nebula and Hugo Awards (respectively) in 1994. Such a coup would ensure Robinson some niche in the Hall of Fame for genre literary kudos; that the books amply deserved their awards is merely our own good fortune. Mars, as theme and haunted landscape, has figured in Robinson's fiction for over a dozen years, and receives here perhaps the most definitive treatment of a classical Sci-Fi setting in the genre's history.

*Red Mars* (now available as a mass-market paperback) begins in a manner that is at once self-consciously textual and cinematic.

"Mars was empty before we came. That's not to say that nothing ever happened. The planet had accreted, melted, roiled, and cooled. But all of that happened in mineral unconsciousness, and unobserved. There were no witnesses—except for us, looking from the planet next door. We are all the consciousness that Mars has ever had."

With these sentences, followed by several further paragraphs of similarly uplifting prose, the novel begins. Two pages later, the camera of Robinson's prose draws back, and we discover that these inspirational, slightly fulsome words are being uttered in a dedication speech at the opening of a domed city on the surface of Mars. The scene that follows—which offers a glimpse of Mars' settlement a generation after the first expedition, the ethnic tensions

among its new settlers, its growing political conflicts—in fact comes late in the chronology of the novel. As in a movie flashback, Robinson then moves back in time, to the space flight that brought the first settlement to Mars. For the rest of the novel, he relies heavily on visual imagery, and his story—although told in literate, precise prose—becomes a kind of David Lean epic, a film for the mind's theater.

What happens when Mars is opened for development by the needy nations of Earth—the conflict between the "Reds," who wish to preserve Mars as it was found, and those who wish to alter the planet so that it will more resemble Earth, ironically called the "Greens"—becomes the matter for an enormous and ultimately tragic confrontation as the characters find themselves "Falling Into History," as one of the novel's sections is titled. In the novel's long climax—a triumph of sustained narrative drive—the disaffected Martian colonists (some from the original settlement, others recent arrivals occupying hastily erected company towns while they labor to develop Mars's mineral resources for Earth's powerful corporations) staged a bloody and chaotic revolt, which ends in abject failure, with enormous damage done to the planet's surface and the surviving population in disarray.

*Green Mars* begins a dozen years later, and takes the reader through another generation of Martian history, leading up to a second revolution. The novel has the odd effect of seeming both linear and cyclic: the reader knows that it will again end in revolt, only this time (one suspects, and indeed hopes) it will come out right.

As the novel opens, most of the rebels are living in Mars' sparsely populated southern polar region, hiding from governmental authorities who may or may not be intent on exterminating them. Robinson dramatizes the life of a band of radicals who live in a giant cavern carved beneath the ice cap ("One day the sky fell" is the first chapter's memorable opening line), who have spent more than a generation in hiding

but will soon be driven out by the forces of history and of the warming planet. The process of "areoformation"—altering the Martian environment so that it more resembles Earth's—is melting the ice, and the ideological conflicts that led to the revolt are beginning to thaw as well.

Robinson's prose is often very good—continuing the ice imagery of the opening chapters, a settler who dies of leukemia is said to have been "engulfed in an avalanche of his own white blood cells"—but the scenes of Mars undergoing its slow transformation (and Robinson's characters are perpetually on the move, giving them ample opportunity to regard the changing landscapes) are often long, which makes the occasional surfeit sit heavily on the reader's mind. In some respects, the novel's cinematic nature works (slightly) against it, for one sometimes feels that Robinson is trying to evoke in a thousand words what a director could create in a single wide-screen image.

Robinson is adept at dramatizing the squabbles between the various radical factions (the Reds are now seeing results of the decades-long areoformation efforts, while the Greens are driven to oppose it with humanistic or mystical fervor), which continue even as events overtake them and revolt breaks out again. Additional complications arise through generational conflict—some of the "First Hundred" original settlers are still alive, and are resented by their much younger, Mars-born companions. The notion that longevity could allow some of the Old Bolsheviks, as it were, to live long enough to see perestroika was first dramatized by Robinson in *Icehenge*, but Robinson employs it to fuller use here.

The middle volumes of trilogies are notably problematic, and I suspect that *Green Mars* serves largely as a bridge to Robinson's concluding volume, *Blue Mars*. Despite its transitional nature, *Green Mars* is a vividly detailed and exactingly imagined novel, one of the few stories in science fiction that can justly be described as epic.

# Absolute Magnitude MSFA

*White Queen* by Gwyneth Jones  
Orb, 316 pp., \$12.95 trade paperback

The 1990s have not yet produced a better SF novel anywhere than Gwyneth Jones's *White Queen*, a flamboyant, wildly imaginative, and deeply moving novel about (of all things) the Aliens Among Us. Jones's novel—first published in England in 1991, where it won the James Tiptree Award—takes the well-worn theme of Mysterious Visitors and invests it with such grace, audacity, and intelligence as to make it seem not only new, but adult.

Jones sets her novel about 50 years from now, in that futuristic middle distance that can partake both of the familiar and the strange. Johnny Guglioli, a 26-year-old "eejay"—an engineer-journalist, electronic reporter and processor of news—is in medical exile, his life ruined after he tested positive for a "petrovirus," an apparently artificial virus that attacks the protein-based "blue clay" that has replaced silicon chips at the heart of the world's data-processing technology. Unable to return to the United States, Johnny spends his time following up UFO stories, a hobby he pursues in a kind of emotional desperation.

Despite the irrationality of his half-held convictions about UFOs ("Statistically, the real one has to be coming along soon"), Johnny proves to be right: There are aliens in West Africa, travelling unnoticed—although they do not look entirely human and seem rather unorganized. When Johnny (and, soon, others) encounters the visitors, they present an odd appearance: lice-ridden, vaguely telepathic, apparently confused about pronouns. All these perceptions, it turns out, are wrong; but the aliens prove to be at least equally mistaken in their beliefs about human beings.

Jones's prose is vivid, finely nuanced, sardonic, and precise, and offers the most energetic combination of polemical and lyrical energies that science fiction has seen since the heyday of Joanna Russ. "Women are the poor of the world," declares Ellen Kershaw, British delegate at the unproductive International Conference on Women's Affairs, "the last working class." Kershaw is attending this protracted and pointless event as a kind of political exile: "She knew that sexual-political labels obscure the real issue, to the advantage of the enemy. This was basically a conference about global labor

conditions, which the employer nations did not feel obliged to attend." When the visitors, intent on finding humanity's seat of government, decide (naively or slyly) that the conference is just that, the "stern elderly socialist-feminist" Kershaw's political fortunes enjoy a sudden upturn.

The visitors themselves prove to be both more like and unlike humanity than most SF aliens: nearly human in appearance, but deeply different in ways too obvious for their human observers to apprehend. The biological mystery that lies at the heart of their true natures, and the ramifications this has for their interactions with humanity, are complex and involving, and reward the second reading they compel.

Jones's portrait of the mid-21st century—neither a technological utopia nor an ecological holocaust, but a crowded, complicated, and various world—superficially recalls the monsoon-soaked England of Geoff Ryman's *The Child Garden*, but is more imaginative, dramatically compelling. Riding an antiseptic commuter train, Johnny debarks and "The smell of London enveloped him... acrid, slightly fecal, oxygen starved, mysteriously cozy." Anyone who finds this image striking—indeed, mysteriously cozy—should make a point of reading Jones's marvelous novel.

*A Fisherman of the Inland Sea* by Ursula K. Le Guin  
HarperCollins, 191 pp., \$19.99

Urula Le Guin's first new collection in seven years is subtitled "Science Fiction Stories," and indeed it contains none of the fantasy stories (some substantial) that Le Guin has published over this period. It is odd to see Le Guin insist on the distinction (her earlier collections have contained both SF and fantasy), especially as it results in a rather slim volume.

Several of the longer stories are set in the future history of Le Guin's early novels, and readers will experience a tremor of recognition as they encounter names and details from *The Left Hand of Darkness* and *The Dispossessed*. Most of the others are shorter, and some quite funny; but all of them show a remarkable thematic unity. Like Le Guin's last two volumes of fiction (*Tehanu* and the story sequence *Searoad*), these stories all concern themselves, sometimes implicitly but

always urgently, with the institutionalized oppression by men of women. In "The Shobies' Story," the theme is merely one thread in the overall design—the Shobies come together to solve their problem, and the fact that the only adult straight male in the group is its central problem is not made grossly obvious—but in several of other stories (the humorous "The First Contact with the Gorgonids" and the solemn "Dancing to Ganam" most pointedly), the straight white male is presented as a ravening and self-deluded monster, who must destroy himself if he is not to destroy everyone else.

Le Guin, knowing this, seeks to demonize such criticism at the outset: speaking of the protagonist of "Newton's Sleep" in her Introduction, she writes, "Some reviewers have dismissed Ike as a feeble strawdog, victim of my notorious bloodthirsty man-hating feminist spleen. Have it your way, fellows." Le Guin does not make Ike a strawdog, although she does condescend to him. But it is impossible not to notice how the gay and bisexual men in the stories, although less wise than the women, are consistently more humane, and less destructive, than the straights.

Le Guin's prose is unfailingly graceful, although the longer stories lack the conciseness and energy of her best short work. It is a welcome virtue in this troubled and troubling collection.

*Globalhead* by Bruce Sterling  
Bantam, 352 pp., \$5.99 mass market paperback  
(Hardcover edition available from Mark V. Ziesing [P.O Box 76, Shingleton Ca, 96088], \$29.95)

Bruce Sterling's second collection offers a variety of pleasures, including the not-inconsiderable one of seeing an SF writer continue to invest passion and energy in short stories after making a reputation as a novelist. These thirteen stories (most written in the four years preceding the book's 1992 small-press publication) possess all the color and flamboyance of Sterling's first collection, *Crystal Express*, but focus—especially the later ones—more on human relationships, which the boastful, outlandish, and extravagantly talented Sterling of the early eighties tended to scant.

"We See Things Differently," an Islamic journalist's scathing account of a decrepit America of the near future,

## Our Stories Continue

deftly dramatizes the clash of irreconcilable cultures in a seemingly straightforward travelogue that turns out to have a sting in its tail. "Are You for 86?" is an extremely funny story combining phone phreaks, anti-abortion fanatics, and countercultural smugglers of (as the punning title suggests) the European abortifacient RU 486. An extended road story, it unwinds at a pace that shifts easily between the deadpan and the frenetic, and reads like a demented *On the Road* for the nineties.

*Moving Mars* by Greg Bear  
Tor, 500 pp., \$5.99 mass paperback

Greg Bear's *Moving Mars* offers another vision of life in a young Martian society struggling against both a powerful Earth and the rigors of its own inhospitable world. Long, epic in sweep, and scrupulous in its details regarding the nature of Mars and the difficulties in settling the planet, Bear's novel has had the vexed fortune to be published simultaneously with Kim Stanley Robinson's trilogy, with which it will inevitably be compared. Despite many superficial similarities, the two works are very different.

Set in the last decades of the twenty-first century, *Moving Mars* dramatizes that moment in history when a settled and self-governing Mars must finally struggle for genuine autonomy from an imperial Earth. This is a very popular theme in American science fiction, but Bear gives it an interesting twist by emphasizing economic rather than political independence. Casseia Majumdar, born to a family syndicate that favors conservative financial dealings and political neutrality, finds herself caught up in politics when she is expelled from the University of Mars for guilt by association. Her subsequent, almost inadvertent involvement with student protest ends messily and inconclusively (a nice touch), but serves to awake her to the political problems her world is facing.

Also in the manner of many SF novels, Casseia turns out to be on hand for an implausibly high number of the scientific and political breakthroughs that Mars undergoes during these dozen years. Like John M. Ford's *Growing Up Weightless*, *Moving Mars* often has the feel of a young adult novel, especially when the protagonist helps discover the long-sought evidence of life on her planet (a favorite YA device). And like *Red Mars* (and Heinlein's *The Moon Is A*

*Harsh Mistress* before it), Bear includes allusions to early American history: a major character is named Franklin, just as Robinson's novel features a major character named Boone. These details make the novel occasionally more cozy than it should be.

The novel's best moments involve Bear's ingenious biological and physical speculations, which do not simply color the narrative but (it is one of Bear's characteristic strengths) shape and inform its texture. The prospect of renewed native life on Mars is an obvious metaphor for the flourishing of the planet's human settlers; but the body of physics that Bear calls "descriptor theory," which posits a quantum universe of notational and unfixed values, goes deeper, casting a fluid, indeterminate pall over the novel, and lending it a touch of something close to mysticism.

Bear's last novel, *Anvil of the Stars*, was relatively unsuccessful; but *Moving Mars* ranks with *Heads* and *Queen of Angels* as one of his best. Less overtly political than Robinson's novel, it eschews the dialectical for the metaphysical, and creates an imaginative space of its own.

*Unconquered Countries* by Geoff Ryman  
St. Martin's Press, 275 pp., \$21.95  
hardcover

Of the four novellas collected here, one is perhaps Ryman's best-known work, but two others have been published only in England, and the last is appearing here for the first time. Since even the "The Unconquered Country" should be new to many readers (although it caused a sensation in the British science fiction world upon its original publication in *Interzone*, its only American edition was as a slim and short-lived Bantam paperback), the book's contents can fairly be regarded as entirely new for most Americans.

Few modern SF stories begin with such arresting urgency as "The Unconquered Country":

"Third Child has nothing to sell but parts of her body. She sold her blood. A young man with a cruel warrior's face—a hooked nose between two plump cheeks—came to her room every two weeks. He called himself her Agent, and told a string of hearty jokes, and carried a machine around his neck. It

was rather like a pair of bagpipes, and it clung to him, and whimpered.

Third rented her womb for industrial use. It was cheaper than the glass tanks. . . When Third was lucky, she got a contract for weapons. The pay was good because it was dangerous. The weapons would come gushing suddenly out of her with much loss of blood, usually in the middle of the night: an avalanche of glossy, freckled, dark brown guppies with black, soft eyes and bright rodent smiles full of teeth. No matter how ill or exhausted Third felt, she would shovel them, immediately, into buckets and tie down the lids. If she didn't do that, immediately, if she fell asleep, the guppies would eat her."

Third Child lives in an unnamed country that is surely an analog of Cambodia, which suffers invasion by its neighbors, colonization by an imperial power, and the eventual destruction of its rural culture. Third Child, a village girl uprooted by war, grows to adulthood, is bereaved, regains hope when the victorious "rebels" take the city, then is swept away by a final holocaust she never comprehends. The story (although slightly overlong in its expanded version) is deeply affecting.

"Fan," set in a London of the near future, also tells the story of a young disenfranchised woman in a great city beset by forces she doesn't understand, but its style is much more understated. The passive and uneducated Billie, living in her tiny flat with her fatherless child, takes her pleasure in a years-long infatuation with the interactive software that mimics the personality of revered pop singer, who talks to her on her computer screen and becomes her confidant and only friend.

The remaining stories are "O Happy Day!", Ryman's notorious tale about an all-woman revolutionary government that sends male prisoners off to death camps manned by pressed-ganged gay men, and "A Fall of Angels, or On the Possibility of Life Under Extreme Conditions," a 100-page novella dating from 1976. Both contain all of the themes of Ryman's mature fiction—the subversive nature of eros; the readiness of government entities (including well-meaning ones) to denature it; the pitiful complicity of the individual in his own subjugation—and are both worth reading. "The Unconquered Country" and "Fan," however, are this collection's real treasures.

# Absolute Magnitude MSFA

*Peace on Earth* by Stanislaw Lem  
translated by Elinor Ford with Michael Kandel  
Harcourt Brace, 234 pp., \$19.95

Stanislaw Lem has little in common with most American science fiction writers, but he does share their fondness for picaresque heroes whose adventures extend over several volumes. *Peace on Earth* recounts the further adventures of Ijon Tichy, the worldly and jaundiced astronaut who appeared in *Memoirs of A Space Traveler* and *The Futurological Congress*. An odd conflation of Everyman and James Bond, Tichy is not a character who develops over time, but rather the locus for Lem's extended musings on human nature, technology, teleology, and other matters.

In *Peace On Earth*, Tichy is asked by the Lunar Agency to orbit the moon and report on the activities of the Earth's arms race, which has been turned over to self-programming robots who occupy various territories on the lunar surface. Taking the arms race out of human hands was intended to guarantee "peace on Earth" and end the ruinously expensive competition for ever more advanced technologies, but the evolving robots have become a threat in their own right. Lem, who is a fine logician, has a good time demonstrating the problems that arise when you push these precepts to their natural consequences (the monitoring systems must themselves be monitored, by systems which need further monitors, etc.)

Tichy goes to the moon and discovers what has happened, but cannot report his findings because one of the robots zaps him with a "remote callotomy," severing the fibers that connect the two hemispheres of his brain. Tichy's consciousness resides in his left hemisphere, but his memories of the lunar expedition are locked in the right hemisphere, isolated from the brain's language skills and out of contact. This is not necessarily a bad thing, however, for Tichy has realized that once he reports his knowledge to the Lunar Agency, they will probably want him dead.

Lem's novel is filled with mordant paradoxes and *reductio ad absurdum* ("An intelligent weapon is not an optimal weapon. It can become frightened, for example. Or stop wanting to be a weapon. It can get ideas"), but the more traditional

pleasures of narrative grace, character development, and elegant prose are not its strong suit. Lem can be a lyrical, even poetic writer (see especially his *Mortal Engines* and *A Perfect Vacuum*), but many of his novels are essentially intellectual constructs, more notable for their ideas than their plumage. *Peace On Earth* is a good example of this. A dark intellectual satire, it displays only a narrow range of Lem's skills, but shows them off well.

*Gun, With Occasional Music* by Jonathan Lethem  
Harcourt Brace, 218 pp., \$19.95  
hardcover  
(Paperback forthcoming from Tor)

Jonathan Lethem's first novel is a sly and deadpan takeoff on the detective genre that Raymond Chandler perfected, an ironic *noir* tale that replaces Chandler's sun-drenched California romanticism with a chilled epidemiological frost. A talented and frequently anthologized writer of short stories, Lethem has written a diverting and funny novel, which sometimes walks a thin line between cute and too cute.

Lethem's private eye is Conrad Metcalf, whose actual job title is "private inquisitor," since in the novel's absurdist future rudeness is illegal and one needs a license in order to ask questions. Metcalf possesses the usual characteristics—he's a disillusioned idealist, he gets along badly with the local authorities, and occasionally sleeps in his office—so when a hopeless client appears, framed for a murder the authorities are convinced he committed (his karma card reads zero, at which point "you couldn't get caught slamming the door to a public rest room without sinking into a negative karmic level"), Metcalf wearily recognizes that he is going to take the case.

*Gun, With Occasional Music* is witty (Metcalf engages in the usual brittle banter with beautiful suspects, saying things like "I pick up my dividends when I can," then adding, "Even I didn't know what that meant"), nicely observed, and has the requisite complicated plot. Lethem manages to invest his future San Francisco Bay Area (nominally in the 21st century, but redolent of the Forties) with a seedy phenomenological indeterminacy, as his characters try to pursue a murder investigation in a society that has

outlawed formal inquiry and has encouraged self-knowledge to recede like a San Francisco fog.

The novel also possesses the usual weakness of book-length parodies: after establishing its tone, the story finds itself running out of subversive potential, so begins to resemble its putative target. Its brisk pace and compact dimensions keep this from becoming a major problem, however, and *Gun, With Occasional Music* offers a cool, amusing read with a glinting edge.

*Small Gods* by Terry Pratchett  
HarperCollins, 344 pages, \$4.99  
paperback.

Terry Pratchett's *Small Gods* tells of torture, religious repression, Death (who appears as various characters die and leads them away), and the persistence of folly in human affairs. It is an unusual set of themes to come from a writer famous for his delirious comedy, but Pratchett—whatever his reputation as a hip writer of frequently side-splitting humor—has always been a humorist of the most mordant, blackest shade. His earlier novels, nearly all of which feature death and mayhem in various comic ways, include *Reaper Man* and *Mort*, while a third begins by promising to answer the question of what our ancestors would be thinking if they were alive today. (The answer proves to be: "Why is it so dark in here?")

Like Tom Sharpe's novels and the diaries of Adrian Mole, Pratchett's novels of the Discworld (which rests upon four elephants standing atop a great turtle; folks get burned for suggesting the world is round) do not enjoy the fanatical popularity here that they do in their home country, which prompts one to wonder whether the failing is ours. Adrian Mole, like Brian Aldiss's novels of the Hand-Reared Boy, may be too British to find a large audience across the Atlantic; but Pratchett should travel as readily as Monty Python. After reading several of his recent novels (Pratchett is prolific, and the reader who pauses for a year will quickly fall a few books behind), I still am not certain of the answer.

*Small Gods* is the story of Om, formerly one of the billions of minuscule deities that swarm invisibly through the Discworld, hoping to be noticed ("Most of them are too small to see and never get worshipped, at least by anything bigger than bacteria, who never say their prayers and don't demand much in the

## Our Stories Continue

way of miracles"). A great god in his time, commanding the belief of millions, Om has lately fallen into decline: despite being worshipped by an enormous theocracy, his ranks of actual believers have dwindled to one, a novice monk named Brutha. As a result of this dwindling of assets, Om has found himself incarnated as a tortoise.

The attempts of Brutha (who alone can hear Om's entreaties) and Om to restore Om's fortunes set a great creaking plot into motion, one that is notably funnier for its asides ("This suggested that the Universe had probably been put together in a bit of a rush while the Suprernae Being wasn't looking, in the same way that Boy Scouts' Association minutes are done on office photocopiers all over the country") than for its design. There is a city full of Greek-sounding philosophers, and an Alexandrian-like library, and an Omnanian army intent on destroying both, and quite a few things happen. Various important issues (the evils of religious intolerance, the unanticipated applications of pure research) are discussed, rather more earnestly than Pratchett has hitherto done.

The problem with *Small Gods* is that its plot is complicated without being especially deft, and many tiny scenes exist solely to move stage scenery or advance the tale. Since a fair number of Pratchett's jokes recur from one book to the next, and many of the jokes in this novel are of the running or repeating variety (virtually every character, seeing Om as a tortoise, remarks, "There's good eating on one of those things"), the reader can end up reading for the good lines, like a partygoer digging through a dish of peanuts for the odd cashew.

*Brittle Innings* by Michael Bishop  
Bantam, 502 pp., \$21.95 hardcover

*Brittle Innings*, Michael Bishop's novel about the Frankenstein monster playing minor league baseball in small-town Georgia during World War II, is one of the oddest high-concept fantasies that I have ever seen from a serious writer. Sold to Hollywood a few years ago as a possible vehicle for Arnold Schwarzenegger, the story has now become a novel that itself seems something of a Frankenstein monster, being composed of disparate parts—a sensitive coming-of-age novel, a vivid evocation of baseball in the Old South, and a story about Mary Shelley's

creature still loose in the world—that have been implausibly sewn together and animated. Despite the occasional lurch, the thing walks.

With able-bodied men being called up by their draft board in the summer of 1943, Danny Boles, still seventeen when he graduates from high school in Tenkiller, Oklahoma, is recruited by the Highbridge Hellbenders, a Class C club in the Chattahoochee Valley League in Georgia and Alabama. Driving from one mill town to the next in a ramshackle bus, the Hellbenders stay in fans' houses instead of hotels, play at rundown fields, and live (save for the married players) in a large boarding house run by the team owner. So strange does Danny find the Deep South, the life of minor-league baseball, and the pressures of the war, that he scarcely takes extra notice of Henry Clerval, the team's first baseman, who is more than seven feet tall, speaks with a European accent, and is of astonishingly misshappen appearance.

Because Bishop's account of minor-league life is so realistic, the reader is more than 200 pages into the book before it becomes clear that the explanation for Clerval's disconcerting appearance is going to be a fantastic one. Only after Danny's background, the personalities of a large cast of characters (the entire team and its support staff, plus others), and the particulars of playing small-time baseball in the forties are vividly drawn does the question of Clerval's mysterious origin move to occupy center stage. When it does—with long sections quoted from Clerval's journal, describing his long journey from the frozen Arctic where Mary Shelley's account left him—the effect is rather like a regional novel that abruptly turns into a brooding metaphysical tale of guilt and inauthenticity, and Frankenstein's creation wanders the earth, wondering about his nature and final destiny.

Bishop plainly intends these disparate elements play off each other (and they do), but while I liked both, I don't think they cohere. Bishop has often experimented with the structure of his novels—*Unicorn Mountain* and *No Enemy But Time*, probably his best books, also conflate unusual themes. The high quality of his prose, and the story's considerable narrative moment, should prevent the Frankenstein theme from becoming too irritating to baseball fans, or vice versa.

*The Dubious Hills* by Pamela Dean  
Tor, 316 pp. \$21.95 hardcover

Pamela Dean's new novel also possesses an unusual theme, despite its generic fantasy setting. The novel's action is set in a small village in a bucolic fantasy world, but the characters (the reader quickly realizes) have undergone some radical change in their consciousness, and behave in a subtly bizarre manner. Dean does not immediately explain what has overcome them, but simply presents it from the protagonist's points of view, leaving the reader to figure out what is going on.

Because "doubt" has descended over the region, those who live there cannot draw inferences from what they perceive, except under special circumstances. In compensation, they possess innate knowledge of various types, which compels them to rely on each other to get through the day. As a consequence, the novel's prose is remarkably flat in emotional affect and almost bereft of metaphor. This effectively dramatizes the characters' limited perspective, although it deprives the reader of many traditional sources of readerly pleasure.

Questions of epistemology and phenomenology are not often seen as central issues for a fantasy novel, and the first half of *The Dubious Hills* is a challenging and intriguing read. But the novel's pacing and structure are unvaryingly uniform—most of the novel comprises scenes of characters walking to each others' cottages and then talking over tea—and the lack of dramatic or emotional modulation begins to wear on the reader. Perhaps the novel should have been shorter, or offered a second point of view for dramatic contrast.

*A College of Magics* by Caroline Stevermer  
Tor, 380 pp. \$22.95 hardcover

Like *Brittle Innings* and *The Dubious Hills*—like many fantasy novels—Caroline Stevermer's *A College of Magics* has an adolescent protagonist. A smoother if less ambitious performance than the previous two novels, Stevermer's tale of the young duchess of Galazon and her unwilling sojourn at Greenlaw College at the insistence of her hated uncle is crisply written, smartly paced, and sassy without being in any way subversive. Although marketed as an adult novel, its ideals readers may be those who enjoyed

# Absolute Magnitude MSFA

Stevermer's young adult novel *River Rats* a few years older, and are now a bit older.

Set around 1910, Stevermer's tale takes the reader from Greenlaw (a college of magic and natural philosophy) to Paris and then back to Galazon, where the duchess encounters a dizzying number of political and magical intrigues. Bereft of sex scenes, graphic violence, and even profanity (the few epithets are rendered in demur dashes), *A College of Magics* is fun and unchallenging, and even—in a climactic twist that seems a bit of a cheat—allows her heroine to eat her cake and have it, too. Readers looking for some light fun might pick it up themselves before passing it on to a favorite niece.

*Shadow and Claw* by Gene Wolfe  
Orb, 413 pp., \$14.95 trade paperback

*Sword and Citadel* by Gene Wolfe  
Orb, 411 pp., \$14.95 trade paperback

Gene Wolfe's magisterial tetralogy *The Book of the New Sun* appeared between 1980 and 1983, and has received such sustained critical acclaim that it may seem strange to give it review space a dozen years later (did reviewers in 1970 think it necessary to draw attention to a new edition of *A Case of Conscience*?) But the novels have been out of print for several years, and new generations of SF readers rise as quickly as mayflies. The new Orb edition—parcelling the four novels into two large volumes—may be many readers' first exposure to the work.

And what can one say, in the mid-1990s, about Wolfe's sumptuous and seemingly bottomless work? Severian, a young journeyman of the Seekers for Truth and Penitence—the torturers' guild—leaves the brotherhood in which he was raised and travels across the face of the ancient and ruined Urth that extends, nothing new, under the cooling sun. He views successive wonders, is caught up in an enormous intrigue involving a conspiracy against the autarch of his nation-continent, and ends up becoming autarch himself. Beneath (or behind) these adventures lie other mysteries, some of which resist explication even after numerous readings.

Although *The Book of the New Sun* has generated a tiny industry in exegesis and critical explication (see next review), the novels are most readily appreciated for their unsurpassed

dramatic energy, their sheer narrative drive. Here is a carriage race through crowded streets:

"The crowd parted like water before the drivers' whips, mothers clasping their children as they fled, soldiers vaulting on their spears to the safety of windowsills. . . [O]ur driver, who no doubt anticipated a rich tip if he won, sent the onagers hurling up a flight of broad chalcedony steps. Marbles and monuments, pillars and pilasters, seemed thrown at our faces. We crashed through the green wall of a hedge as high as a house, overturned a cartload of comfits, dove through an arch and down a stair wound in a half turn, and were in the street again without ever knowing whose patio we had violated."

Severian travels from the great decaying metropolis where he was born through increasingly remote provinces to, finally, the frontier of a terrible war that has been going on for centuries. At the end, the work's scope expands still further, to a scale that can justly (for once) be called cosmic. It is an exhilarating experience, and *The Book of the New Sun* remains my candidate for the finest work that American science fiction has yet produced.

*Lexicon Urthus* by Michael Andre-Driussi  
Sirius Fiction [P.O. Box 460430, San Francisco, CA 94146], 280 pp., \$39.95 hardcover

And the reader (or re-reader) of *The Book of the New Sun* who finds himself rising too often from his armchair to look up the innumerable archaisms and allusions that spangle its formidable text now has a *vade mecum* to help him. *Lexicon Urthus* is a dictionary to what Andre-Driussi calls "The Urth Cycle": Wolfe's four-volume novel, plus its even stranger sequel *The Urth of the New Sun*, and several short works that share the same background. Recognizing that the key to appreciating Wolfe's work resides in focusing not on broad themes but on a close reading of the text, the *Lexicon Urthus* offers nearly a thousand entries, one for every arcane word, plus a number of tiny essays on various subjects relating to Wolfe's arcane magnum opus.

Readers unfamiliar with Wolfe's tetralogy might balk at the notion of consulting the equivalent of *The Bloomsday Book* in order to read a

science fiction novel, however good supposed to be. But *The Book of New Sun* can be entered by degrees, the reader who doesn't trouble to look up the meanings of Wolfe's odd baroque vocabulary will still appreciate the series as an unusually inventive moving adventure. For those who realize that every arcane word in the series possesses an historical shadow, pathways open to the complex tangled meanings that runs beneath the surface.

Andre-Driussi has done an impressive amount of research, tracking down innumerable saints' names, kabbalistic terms, and classical and Arabic terms for stars, animals, and weapons. His glosses are sometimes illuminating—no one can make much sense of *The Urth of New Sun* without understanding the sephirotic tree that Wolfe uses to designate his hierarchy of universes—but sometimes they simply supply data, leaving the reader to provide his own insight. (Andre-Driussi identifies the five saints who were named Severian, but cannot say which any, gave Wolfe the name for protagonist. My own guess is that the name owes more to its punny association with "severe" and "sever" than to any of the five.)

Some of the entries ("sere," "yu") seem too elementary to warrant inclusion, and Andre-Driussi is wrong to think, in his identification of Autarch's real name. But these are finally quibbles. *Lexicon Urthus* is an invaluable reference tool to one science fiction's genuine monument and any serious reader of Wolfe wants to keep it close by.

*Something Rich and Strange* by Patricia McKillip  
Bantam, 199 pp., \$19.95

Patricia McKillip's *Something Rich and Strange* is the second volume in a series called "Brian Froud Faerielands," which comprises a set of short novels written around a series of drawings and paintings by Froud, a commercial artist who worked on Henson's "Dark Crystal" and "Labyrinth." The first volume, by facile Charles de Lint, seemed nothing special (no more, to this non-specialist eye, than did Froud's drawings), but McKillip's novel is more substantial.

Traditional—even unadventurous—theme and treatment, McKillip's tale of a woman whose lover is beguiled by

## Our Stories Continue

Queen of the Sea and is led to an underwater death-in-life from which only she can rescue him benefits from its well-realized setting (Megan draws seascapes from the shore of a coastal town in the Pacific Northwest, and her lover sells them in his shop) and its vivid, delicate style. While McKillip's love of adjectives and semicolons ("She was silent; finally he saw all of her, the pearls in her sea-tossed hair, the flowing, tide-swirled garment that constantly shifted, revealing, concealing") can sometimes pall, she gets good effects from simple declarative sentences ("A wanderer herself, Megan knew the lure of the road, the peculiar quest for freedom that had the safe lights of home at the end"; "The tide pools were appearing and disappearing under the rush and drag of water").

Although the story eventually presents a theme that proves rather banal—the world of Faerie threatened by man's ecological heedlessness, a premise imposed on all the "Faerielands" volumes—and McKillip ends up engaging in some moral cheating for her conclusion (both lovers have pledged to pay a terrible price in pursuit of their hearts' desire, but finally get sent home on what seems no more than a promise to pick up litter on the beach), the story possesses enough memorable images and striking details to please the fussy reader. McKillip has been a more venturous writer in her short fiction (such as the very good "Transmutations" in the recent *Xanadu 2*) than in her novels to date. I hope she decides to give her talent freer rein.

*The Iron Dragon's Daughter* by Michael Swanwick  
Avon/Morrow, 424 pp., \$23  
hardcover, paperback forthcoming in April

Michael Swanwick's new novel also uses the tropes and figures of traditional fantasy, although to determinedly more flamboyant effect. Swanwick's tale of a young girl named Jane who is kidnapped by the agents of industrial elf-lords and set to work in a Dragon factory conflates the everyday world with that of Faerie (taxicabs are driven by proletarian dwarves, while arrogant elves snort cocaine in fancy clubs and great iron dragons drop napalm over the rain forests of Lyonesse). It is a clever conceit, although Swanwick's attempt to make it sustain a novel of this length

eventually reach a point of diminishing returns.

The novel's first eighty pages, set in the cruel and grotesquely Dickensian steam dragon plant, are its best. Swanwick's prose, which is always a pleasure to read, fairly crackles with malign energy:

"The worst assignments were in the foundries, which were hellish in summer even before the molds were poured and waves of heat slammed from the cupolas like a fist . . . . The knockers and hogmen who labored there were swart, hairy creatures who never spoke, blackened and muscular things with evil red eyes and intelligences charred down to their irreducible cinders by decades-long exposure to magickal fires and cold iron."

The hapless Jane's perils and tribulations—which culminate in her escape from the factory at the controls of a stolen dragon—are inventive and colorful, and one reads with pleasure and anticipation, relishing the comfortable heft of the yet-unread pages and hoping they are just as good.

When Jane takes up residence in the larger magical world beyond, however, the novel begins to lose much of its edge. The scenes of high school intrigue and shoplifting in magical malls seem flip rather than genuinely ingenious ("Peter was wearing acid-washed jeans and a denim jacket with the Wild Hunt's 'Horns of Elfland Tour' logo painted on the back"), and the book's later stretches, as Jane goes to college and then tries to make her way in the dangerous urban underworld, seem to protract Swanwick's conceit—an amalgam of the "steampunk" and "elfpunk" motifs that various fantasy writers have been playing with in recent years—past its natural length.

*The Iron Dragon's Daughter* is nearly half again the length of Swanwick's previous novels, and its structure is baggy and episodic. Some of the episodes are good, but others are almost dull, and several are indifferently written. These are not traits one associates with Michael Swanwick's prose, and I hope that his next novel finds surer footing.

*A Conflagration Artist* by Bradley Denton  
*The Calvin Coolidge Home For Dead Comedians* by Bradley Denton

Wildside Press, 208 pp. and 208 pp., \$70 the set

Bradley Denton has published three novels, each more compact, vivid, and memorable than its predecessor, culminating in 1993's *Blackburn*, a powerful tale of a serial killer in the American heartland. *A Conflagration Artist* and *The Calvin Coolidge Home For Dead Comedians* collect thirteen stories and novellas, all but one published between 1984 and 1992, the period during which he wrote his novels.

Most of the stories are fantasies, low-keyed, focused more on character than on action or narrative conceit, and fierce with moral urgency. "Killing Weeds," an early story with a horror theme (a farmer haunted by memories of Vietnam glimpsing black-pajama'd figures in his soybean field) is given emotional depth by concentrating on the man's psychological disintegration as seen by his son; while the much later "The Territory," which places the young Samuel Clemens at Colonel Quantrill's bloody 1863 raid on Lawrence, Kansas, dramatizes the horrors of guerilla war by placing a familiar and sympathetic figure in one as a viewpoint character.

Denton has taken some years to develop a clear narrative line, and all but the most recent stories could stand to be shorter. His prose, which eschews fanciful metaphors or striking imagery, is muddy in the early stories, clearer in the late ones. By the time of "The Territory," Denton is writing with grace and vigor.

It is unfortunate that these volumes were evidently assembled in 1991, and include nearly all of Denton's apprentice work, but only one or two stories that proceed with real assurance and pacing. His next collection should be the one to watch for.

*Bears Discover Fire* by Terry Bisson  
Tor, 254 pp., \$19.95

Terry Bisson's first collection gathers nineteen stories, science fiction as well as fantasy, by a writer who has won considerable acclaim for his short fiction after producing four novels that had pleased reviewers but achieved only indifferent popularity. In addition to the title story, a moving and deceptively simple tale of a middle-aged man coming to terms with his mother's coming death while reports circulate of bears building campfires on the medians of interstate highways, at least two

## Absolute Magnitude MSFA

others possess the wit and emotional power that reward repeated readings.

"Two Guys From the Future" is a comedy about time travelers and the downtown art world ("We are two guys from the future. . . we have come to salvage the artworks of your posteriors") that cuts the deft capers of time-travel paradox tales with rare panache; while "England Underway," which manages to be eerie and homey at once, chronicles the spiritual awakening of an aging recluse as England comes unmoored and begins to drift across the Atlantic Ocean.

*Antiquities* by John Crowley

Incunabula Press [P.O. Box 30146, Seattle WA 98103-0146], 100 pp., \$25 hardcover

*Antiquities* gathers Crowley's uncollected stories, ranging from the beginning of his career to 1993. Most are short, and the early ones can best be described as "charming." But John Crowley is one of the finest prose stylists to write fantasy in English today, and this slim volume will be welcome to admirers of his work.

"Missolonghi 1824" offers a portrait of Lord Byron, dying in Greece, recalling an occasion when he once saw

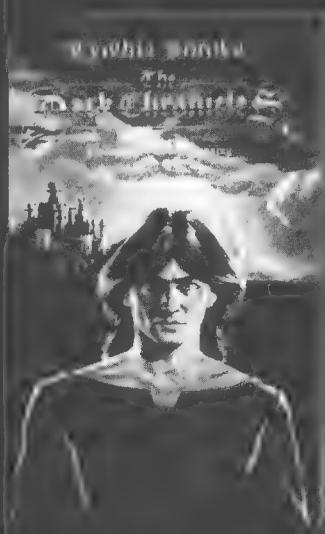
a caged satyr in the mountains of Arcadia, while "Antiquities" constitutes a sly pastiche of the tale told in a London men's club, as two gentleman muse on a strange tale involving the effect of a shipment of mummified Egyptian cats to Cheshire.

Readers unfamiliar with Crowley's fiction should not begin their acquaintance with this handsome but rather expensive volume, but admirers of *Aegypt* and *Little, Big* will find the book well worth while.



# The Dark Chronicles®

By Captain Sopoku



Volume I - The Beginning  
ISBN 1-56373-012-1  
107 pages  
\$5.99 IN USA  
6.99 IN Canada



Volume II - Red Blood  
ISBN 1-56373-013-X  
107 pages  
\$5.99 IN USA  
6.99 IN Canada



Volume III - Triumph  
ISBN 1-56373-014-8  
107 pages  
\$5.99 IN USA  
6.99 IN Canada

At All Truly Dark Bookstores Everywhere Including Barnes & Noble

Published By Flash Blasters, Inc., Closter, NJ

Ad Design: Creative Energy Enterprises, Inc., Clifton, NJ

T. Jackson King is an Oregon archaeologist and writer who lives with his wife and two cats.  
His work has appeared in Analog, Tomorrow, and Pulphouse.  
This story takes place in the same universe as his Warner Books novel, Retread Shop.

## SUMIKO'S HOPE

by  
T. Jackson King

Copyright © 1994

Momma died on the way into Dizzylong System. Poppa died yesterday among the rocks when his suit failed. This morning, Jamie and I did our best to return their ashes to space. The food is nearly gone, the air smells funny in our can, and I wonder how long it will be until the Hardbody Workmaster pops our foam-rock canister to house someone who can pay its rental price. Jamie keeps asking me what death is like. I don't know—at thirteen you don't know everything adults know. Anyway, I don't want to know.

"Sumiko?"

I looked away from the slag-glass porthole to Jamie's bulky sleepsack. "Yes?"

My eleven year-old brother poked out his tousled head; his sleepy brown eyes looked sad. "I'm hungry."

I sighed and pushed away from the spin-wall to float weightless in the central axis of our slowly spinning can. "Me too. There's just three presscakes left. We ought to save them—to pay back anyone who helps us."

Jamie finished squirming out of the wall-hung sack, his yellowish skin tight on his naked ribs. He looked past me and out the single porthole, peering at the other foam-rock cans loosely scattered about one of Dizzylong's asteroid belts. "Have you seen anyone come our way?"

"Nope." Floating naked in freefall, I hugged my knees tightly to my breasts, wishing the heat loss on the dark side of the can would slow down so we could stay warm. "Come hug me. Keep me warm while I continue looking."

Jamie toe-pushed off from the spin-wall, rapidly covering the nineteen foot distance to my end of the can. I reached out and touched the cold metal of the airlock's inner door, pulling myself closer to the nearby spotter porthole. Jamie's sack-warmed hands and stomach felt good against my cold back. Floating weightless, we hung spoony-fashion, he looking past my head out at the same white-dotted blackness of space that I watched. Jamie shifted and hugged me closer, reminding me of the way Momma and Poppa had made love together, in free-fall, ages ago. Dreamily, I remembered the *before-times*. The times when there had been enough to eat . . .

"Ephraim! The kids are watching again!"

Jamie and I had awakened in the dark, hearing noises, the two of us sharing a large sleepsack at one side of a can in some other star system that needed migrant workers with flexible digits and a low environmental maintenance requirement. We'd arrived unknown days earlier aboard a sub-light corvee starship, full of suspense-canistered oxy-nitro sapients of similar gravity needs. And desperation. The Workmaster had pushed Momma and Poppa hard, pointing out that air, water, presscakes and heatpower didn't come free. Nothing came free in the alien-dominated universe of the Forty-Seventh Florescence. Naked like Momma and Poppa, Jamie and I watched them make love, arms and legs entwined as bodies moved quickly and skin gleamed brightly under shining starlight. Momma had moaned with her satisfaction, her legs wrapped around Poppa's hips, then she'd seen our eyes

reflecting starlight. Poppa looked back over his shoulder at us, a thick black beard spread wide by his grin.

"Michiko—it's nothing they haven't seen before. And it's time they understood how babies are made."

Momma's squinty black eyes looked upset. "I know! That's the problem with can-living. No privacy! They should have better."

Poppa turned back to cup Momma's face in one muscular hand, back muscles tightly corded as he gripped Momma's body. "Michiko, we do the best we can. A few more years of migrant labor work and we'll have worked off our passage debt to Ik-thiben Hokten and—"

"And it'll raise the rates on us again!" she yelled, then pushed crying eyes into Poppa's shoulder. "Ephraim, Ephraim . . . why go on? Why—"

"Michiko!" Poppa shook Momma hard, causing them to tilt upside down as the motion swung them about in the can's gravity-free core. "Them! Jamie and Sumiko are why!" Poppa softly kissed Momma's eyelids, then his hips pushed forward. "Remember what we have together? Let's celebrate it. While we have the time."

Jamie looked sideways at me, brown eyes wondering what I'd long wondered. Would he and I get to make love like Momma and Poppa? It made them so happy. It made them happy enough to keep on working so hard. In the sleepsack, his hand touched my hardening nipple, then he looked back at Momma and Poppa.

"Are you making us a new baby friend?" Jamie asked, his hand now moved to hug me tightly. I hugged him back and waited for the answer.

Momma moaned, pulled back a little, and smiled weakly at us. "No. No, little ones. There are enough of us now. This is just . . . for fun. It's what people do when they . . . are lonely, or need comforting."

Their love movements rotated them around so Poppa now faced us, with Momma's naked back to us. "Children. Jamie. Sumiko. What you see is good. It's wonderful. It's something special that humans love to do. All the time. You'll like it when you're grown up."

Jamie is stubborn; he lifted his chin past the sleepsack's edge. "We know that. When can Sumiko and I play together like you do?"

Momma and Poppa moaned together, but not from pleasure. Poppa's round eyes looked at us carefully. "Hopefully never, if we can find other human corvee workers with whom you kids can . . . mate, have friends . . . find someone special."

I hugged Jamie inside the sleepsack, remembering times when I'd woken to find him rubbing his hardness against my belly. "We're old enough. I'm thirteen. I've got tits and belly-hair like Momma!"

Poppa chuckled and Momma laughed. He looked at her. "That's why we need privacy, Michiko! Not for sex, but to keep them from repeating everything we say. Too bad they know your Japanese."

# Absolute Magnitude MSFA

Momma wrapped thin arms around Poppa's wide shoulders, hugged him, and smiled back at me and Jamie. "Sumiko my lovely, lovely *young* daughter, be patient. Be happy to just hug and be close. It's what Poppa and I started out doing, and have never stopped. It's special too."

Jamie looked at me curiously, moved his sleepsack-hidden hand back up to my breasts, and imitated Poppa's wide grin. "I can do as good as Poppa! I get hard too! Momma, I don't want to wait."

Momma and Poppa stopped moving and reached out hands to slow their free-fall rotation. Poppa, still holding onto Momma, looked darkly at Jamie. "Young man, obey! Until you've grown up a bit more you do no more with your sister than hugging and closeness." He blinked. "Jamie, you *know* we have to trust you two when we're gone working. Promise?"

Jamie sighed, then slowly pulled his hand from my breasts. "Promise. But *she wants* to play as much as me! When?"

Momma and Poppa looked at each other, troubled, two bigger versions of me and Jamie floating in the starlit darkness of our Can. I saw tears in their eyes. Finally, Momma wrapped her legs around Poppa's hips again, hugged him close, and looked at me and Jamie.

"Not until we have enough food to last a long while. Not until we . . . are free of Ik-thiben Hokten." Her eyes blinked, casting precious water droplets into the cool air of our Can. "Not until we can once again have a life together, like a family."

Like a family . . .

Jamie's elbow woke me. He whispered into my ear. "Sumiko! Look—there's a scooter coming our way!"

I looked out the porthole. Sure enough. A long black tube with central habitat-globe and inefficient chemical exhaust was jetting our way. It wove among the erratically free-floating cans of other corvee laborers who worked for the Hardbody Workmaster. Would it be nasty old Ik-thiben Hokten itself? Or one of its local Dizzylong helpers? I hugged Jamie's warm arms, then pushed away from him and the airlock hatch.

"Jamie—you got any clothes left? We've got to look regular."

My brother hung naked in core space with me, upside down, his brown eyes thoughtful. "Just mine and yours sleepsacks. Poppa bartered everything else for presscakes."

I kicked with one cold toe back along the length of the can's tube, aiming for the corner where Poppa had stored the "keepers" from the *before-time*. "Better than nothing. Wrap yours around yourself and I'll do the same." He nodded and pushed a side spin-wall, floating after me. "Where's Poppa's emergency locator? Maybe if we look busy—"

The can vibrated to a contact. The airlock entrance tone chimed. Our visitor had arrived, docked nose-in, and was coming inside. Jamie looked frightened. I hurriedly wrapped my black-cloth sleepsack around my widening hips, grabbed the tossed locator beacon cube, and twisted around to face the far end of the dark can. Jamie drifted up beside me, hips likewise wrapped in sleepsack cloth. I gripped Poppa's translator comdisk, hoping the alien spoke something the device could recognize. The airlock's yellow pressurization light blinked on. Slowly, the hatch opened inward.

Something long, black, sucker-tipped and digit-festooned slipped around the edge of the partly open hatch, feeling the circular rim of the seal. For what, I knew not. Another tentacle joined the first one. Then a third one. Two braced and one pushed, opening the hatch fully. Jamie and I floated, arms

around each other, wondering. A globe-light floated inside, followed by its owner.

A gray balloon-face with yellow beak-mouth hung before us. Two large, flat eyes scanned our can, then us. Nine black tentacles, each with two rows of useful little manipulator digits placed opposite each other, moved slowly as our visitor free-floated out of the airlock. It hung in midair, then its arms stretched out radially to touch briefly the spin-walls, stopping it perfectly in the weightless core. The black tentacle arms pulled back into a cluster around its balloon-head. A comdisk glittered among inner skin folds. Its yellow beak-mouth clacked.

"This habitat is needed for new workers. Leave."

Jamie's hand gripped my waist. I stuck my chin out at the Dizzylong native like I'd once seen Momma do when arguing with Ik-thiben Hokten. "We can't. We have no pressure suits."

A clear nictitating eyelid swept down over each flat eye, in a single blink. "This habitat is scheduled for vacuum-cleaning and refitting in seven *dicoms*. Leave before then." It turned around.

Jamie surged forward. "No! We've got no place else to go. We're—"

A tentacle wrapped around Jamie's neck, cutting off speech and stopping his forward rush. "Animals are not allowed in cans."

Gritting my teeth, I held back and tried talking. "Respected Facilitator, please release my egg-quickener." Jamie's hands pulled frantically at the tentacle wrapped around his neck. "He is . . . hasty and unbalanced due to lack of food."

"As you wish." The Dizzylong alien blinked again, then released Jamie. He hung in mid-air, gasping, his breath wheezy.

I held up the locator cube. "Would this buy us additional time before we have to leave?"

The alien stopped just this side of the open airlock. "Does it work?"

I nodded my head, then stopped, remembering Momma's lessons on alien Trade practices. "Yes. It also has scrap value for its components. They're *new*, not rebuilt. Made by a race of this Florescence."

The alien free-floated before us, its black tentacles spread outward like the spokes of a wheel. Jamie glared at it, then kicked back to join me. "What race?" the Dizzylong asked. "How old?"

"Human. They're a newcomer race from elsewhere in the Arm. Omnivore predators with a dextromolecular-levomolecular biochemical basis." I smiled, showing teeth. "Like us two." I tossed the cube to the alien.

Its nine tentacles petaled inward. "There *are* other habitats to cleanse. They can be done first. But that only doubles the time until this Can must produce income for the Workmaster." The translucent eyelids swept down lazily over flat black eyes. "Do you wish to donate cells for clone production? The Workmaster might feel generous and advance you the necessary mining tools in exchange for such a barter trade."

"No!" Jamie and I yelled together.

Jamie's hand gripped tightly my shoulder. I tried to still the fast beating of my heart as I remembered Momma and Poppa's stories of what happened to people so poor they had to sell their genotype to aliens. The baby would be cultured, grown and raised as an indentured slave, never knowing its parents or home race, rather than be a tenant migrant worker . . . like Momma and Poppa. "Can't we just do corvee work for the Workmaster?"

## Sumiko's Hope

Two tentacles twined together in a peculiar gesture. "Not unless you possess pressure suits adapted to your form. The Workmaster is generous, but it cannot stock work tools for every species it employs."

Jamie's hand loosened. I felt like him, exhausted and hopeless. I looked past the Dizzylong to the starry blackness of space visible in the porthole. "Noooo. We don't have any. Poppa sold Momma's suit for food, and his . . . his died with him. What about bagsuits?"

The alien rumbled low—a laugh?—then began stuffing itself into the airlock. "You're probably untrained too."

Jamie looked up, his face angry. "We're not! Our parents taught us teleoperator stuff. We can handle Rock slicing and reduction furnace maintenance! Maybe even biosystem repair."

The Dizzylong paused inside the airlock, one flat eye looking past three gripping tentacles. "Do you know *lyol*, the common Trade language? Can you neurolink with our cutters? I thought not. You have sixteen *dicoms* before this can is cleansed." One tentacle pulled the globe-light inside the airlock. The hatch closed behind it, echoing. The can returned to its unpowered darkness.

Jamie began to cry.

I hugged him. "Brother—please. We'll . . . we'll make it. Somehow."

He looked up at me in the starlit darkness. "How? I'm hungry! You're hungry. We're cold. It's going to get colder when the last heat seeps out past the rock skin. And Poppa's last air cylinder is all we've got."

He cried on my shoulder, chin pushing into my neck as we hugged each other. Trembling with cold, I pulled off our sleepsack clothes, put one inside the other with fingers and toes, then pulled them up over our feet to our shoulders. Jamie shuddered against me, heart pounding to match the pounding in my own heart. His chest pressed my breasts, his legs wrapped around my hips like Poppa and Momma had done. But this time there was no fun-pleasure feeling. This time when I hugged and snuggled close to him like Momma had done so often with Poppa, all I felt was fear . . . like my own. Hurt like my own. Sadness like my own. Wrapping arms about my brother, I dreamed of *older* memories, from the *beforetimes*. The times before we were poor . . .

"Ephraim! The baby's coming!"

Memories. The sound of Momma breathing hard and fast. The memory of waking up one night in someplace that always felt *down*. Someplace where the walls didn't spin. A light already on. Momma on her back in the big bed, hands clenched by her side. Poppa between her legs, pulling with one hand while the other pushed down on Momma's big belly.

Something cried. Not Momma. Not Poppa. Something red, wrinkled, bloody and wet came from between Momma's legs, held up by Poppa. The smile he gave me said Momma was okay, although the blood worried me. I called out.

"Momma?"

The sound of sighing. Momma smiled over at me. "It's all right, Sumiko. You have a new baby brother. Go back to sleep."

Brother? My talk-talk lessons didn't tell me what *brother* meant. It cried again, loudly. Momma and Poppa hugged, talked softly to each other, and Poppa held *brother* against Momma's chest. *Brother* quieted. In the darkness of the pulling-down place, I went back to sleep, wondering . . .

"Sumiko can't find me! Sumiko can't find me!"

That brother! Where was he hiding? Looking around the corner of a new pulling-down place, I searched for him. It was his sixth birthday and Momma and Poppa had told us to go outside and play in the corridors. I knew that when they sent us outside they did something that sounded loud and fun. But I didn't care. My brother had taken my favorite Wigglelegs pet and hidden it. I could hear its high-pitched squeaking voice, calling for me. But in our new pulling-down place, corridors went up, down, sideways and at all angles, each with its own *upness* and *downness*. Where was my pet?

I turned up a sideways corridor, listening. "Jamie?"

"Silly, silly, silly sis-ter!" came his fainter voice from all directions.

Oh! Where could he be? Stopping, I closed my eyes, slowed my breathing like Momma had taught me, and sniffed for his scent. Around me funny-shaped people passed by, going about their business. I ignored them and leaned against the metal wall, smelling. Ah.

I ran over to a place where an *updown* hole pierced the floor and continued on up into the ceiling. I jumped into it and floated upward, following the smell. Six side corridors later, I pushed out of the *updown* tube and landed on my bare feet, sniffing. There!

Jamie lay crouched behind a row of yellow plants, Mr. Wigglelegs held firmly in his hands. He looked up at me as I leaned over the plants. Brown eyes looked both happy and mad.

"You cheated! You peeked at your belt-locator to find my signal. You—"

"I didn't!" I stuck my tongue out, then spoke again. "Give me Mr. Wigglelegs!"

Jamie stood up. My little brown-furred Mr. Wigglelegs jumped out of his hands into my arms, humming nicely, telling me what a terrible *bad* boy Jamie had been. I nodded my head, agreeing. "There, there, you're right—he is a bad little predator boy!"

Jamie stuck dirty fists on covered hips. "I'm not! You cheated! Anyway, you couldn't find your way out of Brownface's bathroom." He laughed.

"Neither could you!" I turned to go back home, hoping smelling worked in reverse so I wouldn't have to let Jamie see me ask for help from the belt-locator. His hand caught me before I could get away.

"Sumiko."

Clutching Mr. Wigglelegs to my chest, I looked down at his solemn face. "What?"

"What do Momma and Poppa do when we're playing outside?"

I started walking toward the *updownhole* that led back home. "Don't know. But Momma says she and Poppa like to play just like we do."

Jamie skipped alongside me, his legs not quite long enough to keep up with me. "How do they play?"

I stopped and peered at the *updown* hole, waiting for one of the funny-shaped people to finish rising up it so we could go down. "They tickle. They kiss. They hug a lot. Lately, they've . . . been different."

Jamie jumped ahead of me into the now-empty *updown* hole. I followed and didn't yell at him. Momma was always telling me to act *responsible*. From below my feet, Jamie looked up. "What's different about them?"

I didn't know. I just knew that after the visit to Brownface's funny house, where things grew from the ceiling and Brownface and his family hung down from bars set into the

# Absolute Magnitude MSFA

roof, Momma and Poppa had been acting funny. Worried. Like you act when you're not sure if there's air on the other side of a door.

"Nothing. We get off here."

Jamie silently followed me out into a corridor and back to the small alcove which held the door to our livingplace. We sat down outside to wait for Momma and Poppa to let us in. I pulled a little bounce-ball and some metal chips from inside my coverall pockets. Jamie watched me intently, sitting cross-legged with his back against the alcove wall. I looked over at him.

"Wanta play Pick-Up-Rocks?"

"Sure. Can I hold Mr. Wigglelegs while you go first?"

Hmmm. "Yes. But be nice to him. You scared him." Jamie nodded seriously.

My pet peered at me from atop Jamie's lap, its six tiny eyes watching my hands closely. I tossed the ball up into the air and hoped I could sweep up all the metal chips in one bounce. I always tried to do everything the exactly *right* way, better than anyone else, better than . . .

"Sumiko!"

Memories felt so nice, so warm, so . . .

"Sumiko—wake up!"

I opened my eyes. Jamie floated beside me in the sleepsack. It felt cold in the can. The darkness seemed darker. "What?"

Jamie touched my cheek with one cold hand, just like Poppa did so often with Momma. *Had* done. "I . . . I just wanted to talk to you. You seemed so . . . still."

I snuggled into Jamie's warm embrace, resting my cheek against his hairless chest. Like I'd seen Momma do so many times. It felt good. Even if the air smelled worse. "So talk." The sound of his heart beating against my ear felt good, felt *regular*, felt alive.

"Do we have anything to signal with?" he said. "To call to another can for help?"

I bit his muscular chest, feeling playful. "Idiot. Of course we don't. It's all been bartered away for food. The last caller we had was on . . . Poppa's suit. We can't call anyone."

Jamie hugged me tighter, enveloping me in his long arms, just like Poppa had done so often with Momma. He was cold too, but inside his embrace it felt a little warmer. I felt older than thirteen years. I wished—

"Where's the mirror?" he said thoughtfully.

Mirror? Momma's polished metal mirror? Was that one of the "keepers" that Poppa hadn't sold? He'd sold her hairbrush, her clothes, her boots, her suit—everything except a small holocube of them together on someplace that looked vast, green and blue-covered. Earth? What was *Earth*? Recently, Momma and Poppa hadn't wanted to talk much about it. It seemed to be a pulling-down place different from the place we'd stayed at until Brownface had sent us off to work for Ik-thiben Hokten. Momma and Poppa had said something about their *contract* being *sold*, so we had to go.

"Over there. In the corner, I think."

Jamie held me tight inside the sleepsack, poked with his feet against the spinwall so we wouldn't have to expose bare skin, and floated us back to the rear of the can, the end opposite the airlock end. A small metallic stowbag hung tied to a rock peg. It looked nearly empty. Nearby hung three presscakes and a water-bulb. Jamie stuck one arm out, grabbed the stowbag, and quickly pulled it inside the sleepsack. His misty-white breath left small cloud-puffs floating on the still air. Inside, something cold touched my bare skin.

"Here it is!" Jamie held the rectangular mirror out in one hand, smiling. "Let's go to the porthole and try to reflect light from it. Somebody might see the flashes."

The cold made me grumpy, but Momma had always said it was up to me to be the responsible one. "Well, go ahead."

I smiled to myself, shaking my head. Jamie had always had wild ideas. Silly ideas. But some of them worked. They had made us barter money before we'd left Brownface's pulling-down place. Cocooned with him in the same sleepsack, I necessarily went where he went. He kicked and we quickly hit the opposite end. Jamie grabbed the hatch lever, stopping our rebound.

We reversed positions, with me spooning up against *his* back, my breasts pressed against his bony ribs. I hugged him tightly and looked over his shoulder. "Jamie, the aliens don't care about us. And who would understand that old code Poppa taught you? Only the translator comdisk makes it possible to talk to aliens."

Jamie shook his head, short black hair swirling in freefall. "Maybe. Maybe not. Let's try." He held one hand out with the mirror, placed it before the slag-glass porthole, and angled it to catch the faint starlight. Slowly, he winked it sideways in regular short and long movements. Time after time he repeated them.

Nothing. No response from the six other slowly spinning foam-rock cans we could see outside the spotter porthole. Only the slow silence of their movement as they presented one-half of their length to the yellow-white light of Dizzylong's star, letting it warm the outside of the can only a little.

"We need more light!" he said.

I leaned my chin on his shoulder, close by one ear. "How? We have no heat powerpacks left. The lights in here don't work anymore."

Jamie looked around at me, beardless face full of Poppa's fierceness. "I know! We've got to swing the can around until the sunlight comes into our porthole."

I smiled weakly. "Jamie, there aren't any reaction jets fitted to this can. So we can't—"

"Sumiko!" His eagerness stopped my quiet attempt to prepare him for the inevitable. I sighed.

"Okay. There might be a way." His eyes lit up as I tried to remember Momma's lessons about conservation of angular momentum in a cylinder rotating along its long axis in freefall microgravity. "I . . . I think we need to move our mass to the far end of the can and hook up against a spin-wall. That should cause a precession wobble that will shift the can around so the porthole faces in *that* direction," I said, pointing with one cold finger in a direction indicated by the crescent-lighted shapes of the other cans.

Jamie grinned. "Great! Let's go."

My stomach rumbled. "Sure. But first let's use the downness of the spin-wall for eating. Like . . . like before coming out here."

My brother's grin got tight, but he nodded. "You want two presscakes? I don't need a lot."

I smiled, pulled his head around, and kissed him on the lips. Like Momma used to do with Poppa. He looked surprised. "Brother dear—you are forgiven for taking Mr. Wigglelegs away."

Jamie looked confused. "Wigglelegs? When? Oh—" Brown eyes turned quiet. "Sumiko, I'm sorry . . . we couldn't bring him along with us."

I pushed his face back around and buried my head in his back, legs gripping tightly around his narrow hips. "I know.

## Sumiko's Hope

Let's bounce back and then eat."

After the last of the presscakes were eaten, half the water drunk, and we'd begun to breathe faster and faster as the air got . . . fuller of carbon dioxide, we lay together in the sleepsack. Stuck against the spin-wall, feeling weight and *downness* against our backs. The curve of the spin-wall under my back felt luxurious, like the things we'd slept in during the before-times. Jamie stirred beside me.

"Sumiko."

I snuggled into the embrace of his arm, head against his chest. "Yes, brother?"

"Remember the last Workplace? Remember what Momma and Poppa said when we asked if we could make loveplay?"

His arm hugged me, one hand drifting down to rub my breasts. "I remember. They said we should *wait*. Wait for other humans like us."

Jamie turned in the sleepsack to face me, eyes earnest. "Sumiko, I . . . I know how to do what Poppa did with Momma. We might not get another chance before . . . before we're rescued. Do you want to make loveplay?"

I touched his cheek, his lips, his soft brown eyebrows. "Yes." One hand moved down to touch me between the legs. "But not yet. Please." Jamie looked confused, and saddened. "Jamie, we . . . we should do it when it's a better time. Like Momma said. With another human person like us—not with each other. That's what they *really* wanted."

"We might not get a better time. Or any time. I'm sure my signal mirror will work, but . . ."

I kissed him again. "Brother, your idea *will* work. Let's just snuggle and hug close for awhile. Wait until the sun comes up."

Jamie hugged me closer, his eleven year-old chest pushing against my chest, hips pushing against my belly. My legs entwined with his legs as we lay side by side, feeling *downness*, like old times, like the before-times when Momma always laughed and told us wonderful tales of someplace called Earth.

"Sumiko, what are the primary land masses of Earth?"

I looked at Momma as she sat in our living-place with the always-downness. Poppa was gone out, looking for work and Jamie sat beside me, eyes eager as Momma held up a hand-drawn picture of a wet place called Home.

"Asia, Europe, Africa, Australia, Antarctica, North America, and South America," I said, having memorized the funny names long ago.

Momma smiled. "Good. Show me on the picture where Japan is."

I leaned forward and pointed at four small islands off the side of someplace called Asia. "There. In the Pacific Ocean."

Eight year-old Jamie stirred beside me. "What's an ocean? How can there be so much free water just . . . lying around?"

Momma looked sad a moment, then brightened. "An ocean is a lifezone, just like the air we breathe and the food we eat. It's a place where other things called fish and whales live."

Jamie stuck his tongue out one side of his lips, face squinched up like he does when he's trying to figure out something. "You mean like starships? Or like the big asteroids we're heading for?"

Momma shook her head. "No. *Much* bigger. So big . . ." her squinty eyes blinked, wetness showing just for a second, "so big you could walk and walk in one direction longer than you've been alive, Jamie. So big it's got more people like us on it than you've ever seen of . . . aliens."

Jamie snorted. "You're telling an *untruth*, Momma. Do we get to spank you now?"

I laughed and pushed him onto the stone floor. "Jamie! Momma's too big to spank. Anyway, she loves us and wouldn't *lie*. It's just . . . just something we've never seen, that's all." I looked back at Momma, seeing her approving look. "Just because you've never seen something doesn't mean it doesn't exist." Jamie sat up, glaring at me.

"Good, Sumiko." Momma looked aside at my brother. "Jamie, go out and play in the corridors for awhile. Your sister and I need to talk . . . privately."

Jamie stood up, wide-eyed. "You mean you're going to make loveplay with *Sumiko*? I thought just you and Poppa—"

"Young man!" Momma stood up, finger pointing to the door. "Privacy is for *more* things than making love. Now out!"

Jamie walked out with many backward glances. After the door hissed shut, Momma looked back at me. She sat down on the wide softseat, patted it and motioned for me to sit beside her. I came over and sat down, looking up at her.

"Sumiko, how much do you like Mr. Wigglelegs?"

"A lot! He's my bestest, friendliest friend in the whole wide habitat! I—"

"Sumiko!" Momma interrupted with a frown. "Don't play storytalk with me. Speak clearly like we've taught you."

I bit my lip. "Yes, Momma. Next to you and Poppa and Brother Jamie, he's the most important thing in the world to me."

She nodded. "I know that. But Poppa and I are . . . having trouble finding work. Mr. Thit-thit hopt-loggen—you call him Mr. Brownface—has offered mine and Poppa's work contract to a Trade associate it knows."

"Who's this friend of old Brownface?"

Momma smiled and fluffed at my long hair. "Daughter! Try to be polite—even to aliens. Especially to ones who hold the rental contract for our livingplace."

"I will."

"Good. Now if we go to work for this Ik-thiben Hokten we'll be leaving here, never to come back. We'll travel . . . asleep, in suspense canisters, until we arrive at the place needing our help. There won't be any room for Mr. Wigglelegs."

My heart felt . . . pain. Pain worse than when I'd twisted a leg jumping out of an *updownhole*. Pain worse than the belly cramps that had started a few days ago, that left me bleeding between my legs. Momma had held me then, trying to make things better. This felt worse.

"Do we have to . . . leave Mr. Wigglelegs behind?"

Momma nodded, eyes also wet. "Sumiko, we *do*. We're poor, darling. We have to take any Work we can find."

My face felt wet, but I didn't cry. "What's *poor*, Momma?"

Momma's eyes widened and drops began falling fast. She sniffled, rubbed her eyes with one hand, and hugged me tight against her chest. I heard the beating of her heart, sounding like mine during the cool darkness of night when I lay awake beside Jamie, wondering if I would ever meet someone special like Poppa and have a *baby*, like Momma had had me and Jamie. Momma's voice came to me from above my head, soft and sad.

"Poor is when *you* have no choices."

Momma rocked me in her arms for a long time, holding me close, crying without sound. I knew she cried even without looking. I knew because her chest heaved and throbbed just like mine as I thought about leaving Mr. Wigglelegs behind. Thought about it until my eyes blurred with whiteness . . .

# Absolute Magnitude MSFA

Light woke me.

Inside the enveloping sleepsack, Jamie stirred behind me, his arms wrapped around my ribs as he held me in a spoony embrace. I blinked and looked outside. "Jamie! It's the sun!"

He croaked. "Sun? Oh! Where's the mirror?"

My toes felt at the bottom of the sleepsack and found the metal mirror. I handed it to him under the protective warmth of the sleepsack, only my nose and the top of my head poking out into the cold air of the can.

"Here it is. Ready to bounce over to the airlock?"

"Sure." Jamie hugged me with one arm, putting the other outside. He held the mirror and seemed ready to catch the airlock lever. "Hold still."

I held still. He loosened our attachment to the foam-rock wall, then kicked softly. We became weightless as we entered the narrow freefall of the core, then weight tugged at us briefly as we caromed off the far wall. I stuck a hand out to help, and eventually we arrived at the airlock end of the can. Jamie tied the sleepsack lanyard around the airlock lever, moved around in front of me, then put out his mirror-hand. He positioned the mirror in front of the spotter porthole, and moved it sideways. A bright yellow-white sunbeam skittered off the mirror and into the darkness of the can, lighting up random shadows and minute cracks in the foam-rock. We settled down inside the sack, and Jamie carefully winked the mirror sideways in short and long movements. Streaks of yellowish light leaked into the can, raising long shadows. What was the name of the Dizzylong star? Momma had called it Gamma Delphini B, an F8 main sequence star. *Gam . . . ma Delphi . . . ni . . . B.* The words sounded soft, tinkly, musical. Maybe a made-up song using its name would be fun to sing . . .

Time passed, and Jamie's outthrust arm still moved, winking the mirror. Long and short flashes of light skittered off into the blackness of our neighborhood, calling to the other cans that sunned themselves in the yellowish-white light. They resembled a curving line of brown eggs, much like the eggs that hatched out Wiggleleg pets. I nudged Jamie's back with my chin. "Let's look now. Maybe we can see someone coming."

Still inside the sleepsack, Jamie turned my way, looking worried. "Be careful not to look directly at the sun. It'll hurt your eyes."

I poked playfully at his ribs. "Silly! I'm the one who studied Momma's Hertzsprung-Russell star evolution diagram! I know how to use the Stephan-Boltzmann Law to—"

"Sumiko!" he said loudly. I shut up. Jamie's lips relaxed.

"Yes, Brother?"

"Just be careful." He turned his tousled head back. I leaned forward with him, peering over his shoulder to look out the porthole. Something glimmered in the white-spotted blackness. Under my arms, his bony chest expanded suddenly.

"Look, Sumiko! Someone's coming!"

"Where? Oh where!"

He pointed. "There, off by that red star." I looked. Jamie was right. Someone was coming, far off, moving slowly . . . but it was coming to us in a long black tube.

The Dizzylong Facilitator was returning. No one else. It was going to pop the airlock hatch and let our air into space. I reached over Jamie's shoulder, cupped his chin, and pulled his

head around to face me.

"Jamie, it didn't work. No one's coming to rescue us." I shivered against the increased chill of the can. "We're going to die."

Brother turned around in the sleepsack, facing me with eyes wet and sad. I touched the little water droplets. His breath puffed whitely. "But Sumiko, I don't want to die."

"I don't either. But we will."

He sobbed suddenly. I leaned against his bare chest, hearing the hammer strokes of his heart. My breath too came fast, and I almost cried. But then I remembered Momma's last words to Poppa.

"Jamie, hold me. I don't want to die . . . alone."

He leaned back in the sleepsack, looking at me earnestly with weepy red eyes. "Isn't someone going to help us?"

I shook my head, trying to be the strong responsible sister. "There's no one but ourselves, Brother. Come hold me—like when we snuggled together in the gravity-bed."

Jamie looked close to tears again. "Can't we give the Dizzylong our cells for cloning?" he said, glancing wildly at the porthole.

"No!" I almost got mad at him. "No, Jamie. Humans don't sell other humans into . . . a future they don't want. A future as slaves. Now come hold me. Please?"

"Yes, Sister." He held me again, his bare skin cool at first. Hanging in the weightlessness of the can's core, near the airlock hatch, we clung to each other inside the sleepsack.

I wrapped my arms around Jamie's neck, pulling him closer so I could whisper in his ear. "Remember when we used to play with Mr. Wigglelegs? Remember Pick-Up-Rocks? Jamie—I'm glad I shared Mr. Wiggleleg with you."

He hugged me back, heart thudding fast against my chest. "You . . . you're a good Sister, Sumiko," he said; I felt new wetness on my shoulder. "You were fun to play with—more fun than the Brownface kids."

I laughed softly. "Thank you." My eyes felt wet too. Fighting that wetness desperately, I thought of something. "Jamie—do you think we'll see Momma and Poppa when we—go where they went?"

Jamie shivered against me, his head still nestled beside my neck. "I hope so. I miss them. I want Momma. I need—"

Something bumped the outside of the can. My bare skin felt cold, despite the warmth of my brother's body. He moaned. I moaned. It was really going to happen.

Jamie kissed me suddenly. "I love you, Sumiko."

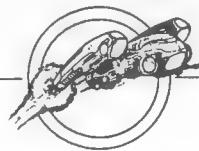
"Brother!" I kissed him back. Then we held each other in the darkness, trembling, as the mechanisms did their job. We calmed. We remembered Momma and Poppa. We remembered the good times. We remembered our family.

Momma had been right. Poor is indeed when you have no choices. At least no choices any real human would choose.

As the can shook again and the hatch prepared to open, Jamie cried against my shoulder. Yet, in the darkness, I saw Momma.

"Momma?"

Her ivory white face glowed with love, and she held out her hands. They reached for me and Brother Jamie. It was time—time we went home to our family.





*Geoffrey A. Landis was first nominated for a Hugo in 1985.  
He didn't win that year, but he did win a Hugo in 1990.  
This is his first appearance in the pages of Absolute Magnitude*

# THE CITY OF ULTIMATE FREEDOM

by  
Geoffrey A. Landis

Copyright © 1994

The rumor flies, races, *explodes* through the city Vadya: "Miek'l has challenged the machine!" It is almost a joke, as if one had said, "Miek'l has gone crazy." But no one goes mad in the city (although the standards of "sane" behavior are much wider than what you, perhaps, would consider normal).

And no one ever challenges the machine, the benevolent machine, the wonderful city machine that makes the city of ultimate freedom possible.

Paena, the peace officer, tells it to Edonna, sculptor and composer, who pauses from work to listen: "Miek'l has challenged the machine!" Both giggle.

How long has it been, since anyone has challenged the machine? A hundred years? Two hundred? —No, wasn't there that fellow, what was the fellow's name? Forty years back? —Didn't last a day at it, either. —Yes, but that fellow was mad. —Of course, but so is Miek'l. They giggle again.

There are other cities on earth, many, but of them all, Vadya is the most beautiful, the most perfect. The citizens are artists and politicians and musicians and flitter-truck drivers, and they run their city with pride, though they know that if they did nothing, the city would run itself. They are happy, but not vacuous; they are industrious, but not slavish. No citizen ever needs to order another about. If a composer needs musicians to premier a new composition, citizens will surely volunteer; but if none do, why, then the city machine will create them. Robot musicians, to be sure, but ones which look and act and play as well as the best musicians. Whatever one desires to do, one can probably find others in the city to serve as audience or co-workers or critics; but if not, why then the city machine will provide.

Edonna tells it to Jason, the shaper; Jason tells it to Kadja, the listener: "Miek'l has challenged the machine!"

"Indeed," says Kadja with a smile. Kadja has russet fur and a cat's face. Fur was quite the fad in the city, some years back; many still wear it, although the fashion has changed. Kadja thinks it makes lovemaking more sensuous. Once, years ago, Kadja had been Miek'l's lover, the memory is part of what makes Kadja smile. Jason has a short prehensile tail, which now switches back and forth slowly, a tuft of brightly colored fur waving at the tip.

How long has it been since anybody has really, seriously challenged the machine? Does anybody remember? Wasn't it a fashion, a fad, four or five hundred years ago? Who remembers that far back?

Even the perfect city grows cloying to some after long enough, and for these citizens, too, the city provides. There is a place—not a fixed physical place, but a place in the city nonetheless—which the citizens call simply 'the Primitive.' Sometimes it is an Amazon rainforest, sometimes a primordial midwestern plain, but always it is a place where there is no computer to order around, to satisfy every desire. Any one can spend time there, but remarkably few ever do, and for decades at a stretch the Primitive lies dismantled, ready to be put together again for a single individual's whim. It is enough for

most that such a thing exists. They are too used to the comforts of the city.

It is also a place of exile, if such is ever needed, but it is used for that even more rarely.

Kadja the listener tells it to Kiel, the performer: "Miek'l has challenged the machine!" Kiel looks up, smiles, and makes a gesture like holding a stone axe while grunting like a cave man: "Uh! Ugh! Ugh! Ooh-ga!" Both of them giggle.

It is inherent in the very structure of the city that people be free to challenge the machine, but how long has it been since anyone actually *wona* challenge? A thousand years? Ten thousand? Sure, there are the stories—legends, almost—of the great challenges, but that was long ago, when the city was young. The legendary shaper Mandra. The composer Tlastla, who dueled in a single straight session from dawn to dawn, out of whose duel came the "Song of the City" and the "Song of the Human." Legendary Daelus, who invented the Maze. Heroic Tiulus, who conquered it.

The challenge is ancient: "Anything you can do, I can do better."

Any citizen of Vadya can order the city around. But who programmed it in the first place? It has learned to program itself, "learned how to learn," if you will. It had to; the city machine is far too complex to be encompassed by a human mind, even a genius. Although any citizen gives it orders, it is unthinkable that a citizen could be allowed to reprogram it. What if a citizen ordered it to shut itself down? What if a citizen ordered it to allow the killing of another citizen? (Although the city will willingly produce sham citizens—robots, to be crude—to be "killed" as often and as violently and as imaginatively as anyone could desire).

But it is equally unthinkable that *no one* should be permitted to reprogram the city. What if something new comes up? What if there is a problem in the programming?

And so the challenge. To reprogram the city, one must earn the right. One must first prove that there is one thing—anything at all—that one can do better than the city machine.

It is not easy.

There is a penalty for those who challenge and fail. For every day of challenge, a month in the Primitive. This is not so much a punishment as a reminder, a tangible demonstration of what the city does for its citizens. A way to help insure that challenges are not undertaken frivolously.

Miek'l stands, tall and proud in the morning sunlight, looking across the city, contemplating the challenge. Spread out before the challenger, the city is a polychrome panorama, glittering spheres of light and patches of multicolored mist floating slowly past spires which disappear into the sky above. Miek'l has chosen to open challenge with the maze, not expecting to beat it on the first try, but intending to get a feel of the machine.

The maze is a huge cube, two kilometers on an edge, gridded with hollow transparent rods like some crazy jungle gym. Inside the maze race three balls. Two—the white ones—are

# Absolute Magnitude MSE

controlled by the city machine. The third, red, is controlled by the challenger. They move with enormous velocity. In five seconds a ball can cross from one side of the maze to the other.

Miekl hovers over the ball, contemplating for a moment, and then takes off. The ball darts through the maze, and Miekl flies after it, suspended by magnetic levitation loops, directing the ball's motion. The challenger's red ball is marginally faster than the city machine's two white ones, and if Miekl can use this advantage to get the ball to a position at least one kilometer from either of the computer controlled balls, the game is won.

The computer attempts to anticipate the challenger's moves, predict each twist and turn to run its balls along a shorter route and appear ahead of the challenger. The challenger has an added distraction. Flying along next to the ball, Miekl must dodge the gridwork of rods. The game is not entirely without physical danger. By concentrating too much attention on the ball, Miekl could forget to watch the flightpath and run into a grid. At a speed of half a kilometer a second, this would be no minor collision—although the city machine could, and would, resurrect the body, given no prior orders to the contrary.

The center of the cube is laced with obstructions, dead end paths, confusing interconnections of passages. The outer faces are almost obstruction free. Miekl holds to the outside, racing across the cube at blinding speed, making instantaneous turns seemingly without a flicker of hesitation. The city machine's balls pace along, taking different routes but never more than a few meters distant.

Miekl plays with sure easy moves, with a lazy display of self-confidence, occasionally diving into the maze at the center, flashing through the labyrinthine gridwork, trying to snare the computer into a false trail, before racing back to the surface. Nothing works.

The few watchers eventually drop away. Although the game is an intense struggle of strategy and reflexes, the end is a forgone conclusion. Miekl remains unable to shake the pursuers. In the end Miekl drops out, enervated, exhausted, drained.

No one pays attention.

On the 3D newspaper posters of the city Miekl rates only a corner, showing a loop of action involving a particularly involved duel switchback, where Miekl manages to sidetrack one of the computer's spheres. The other, though, loops around ahead to arrive at the next grid intersection a split second ahead, then pauses, waiting, as if mocking the effort.

There are four billion nodes in the two kilometer cube. How can one human, no matter how good, compete with the nearly omnipotent city computer? How can Miekl find the one possible combination of randomness and purpose that might frustrate the computer's efforts to anticipate every movements?

In a small performance niche in sector three, Edonna—sculptor, composer, and conductor—pauses from work as Paena tells the news. Ah, so Miekl has indeed failed. It was not unexpected, but Edonna is nevertheless unaccountably saddened. But the sculpture-composition is to premier shortly, so Edonna quickly bends back to work. There is much to do, and little time.

The figure being sculpted stares back with blind eyes, rough-hewn face uplifted to the heavens, stubby wings on its back unable to fly.

In the Primitive, there is no city. The citizen on vacation must plan most carefully, for there is no way to call out to the city machine to return. So, too, the failed challenger. Wander though one might, through jungles, across the dusty plains, over

high mountains and down mighty rivers, one can find no edge to the Primitive. Does the city slowly, subtly bend one's path so that one actually wanders in circles, save only that the city machine tears down the jungle ahead, replacing it with savanna? Is it actually a treadmill, so that no matter how one travels, one never leaves the starting spot? Or has the city machine found a way to make it truly infinite in extent? Does it matter?

And yet Miekl persists.

The next day Miekl challenges in symphony. A random jury has been selected. These are people who know Miekl, for the city machine has selected people from sector three, Miekl's own home sector. This, too, gives Miekl an edge—in theory—for as human beings, Miekl knows these people intimately. But the city machine has pandered to them, pimped for them, procured for them their every pleasure and listened to their most secret confessions. It, too, knows them intimately.

The challenge starts. A randomizer produces a four note theme, and both machine and human strive to incorporate it into their first movement. The theme is neither melodic nor particularly discordant, merely random, like that produced by a kitten jumping onto a piano keyboard. The random choice insures that neither human nor computer could have music already prepared for the event, nor stolen fragments of melody from some forgotten composer of the past.

The city of ultimate freedom is forever fresh, forever changing, for all that it is thousands of years old. To be sure, some citizens prefer to withdraw, prefer machine-programmed fantasies to the real world, no matter how fantastic the real city may be. And others shun companionship in a different way, preferring never to meet real people at all, acting out their peculiar fantasies entirely in the company of the city's robots. But many live in the real world. They run the city with care and imagination, and take pride in doing so.

If the city machine could be said to have emotions, they would be love and pride. Love for its citizens, pride in their individuality, in each one's accomplishments. It has the records of hundreds of centuries of human culture, and still it glories in the accomplishment of each of the millions of citizens of the city. And it has pride in itself, in its abilities to satisfy the requests and desires of each of those millions, instantly, with maximum efficiency.

Miekl's movement opens with the four note theme stated plainly, without elaboration, without emphasis. The theme repeats, and each note now splits off into a plethora, a discordant forest, harsh, atonal, chaotic. The four notes appear again, and again, now barely glimpsed through the jungle. Slowly a pattern appears in the chaos, the theme overlaid, not fitting. When the pattern finally resolves, what was seen as chaos is now clearly a complex order, but still the four notes jar, piping in over the ordered background now in high, woodwind sounds, now in low, bassoon tones, trying to find a place to fit. But wait! A shift of half a beat, a jerk in the tempo, and now the theme does fit, it is in fact the last piece of the pattern, whose absence could not even be noticed until it was in place. And the movement resolves with a final chorus of the completed theme, the last note held, a piping voice dying slowly into silence.

Into the silence comes the opening of the city machine's music. A simple melody, elaborated once, then joined in counterpoint by the four note theme. The two themes dance together, whirling and changing, then returning again as individuals, finally to merge into a single voice. This repeats, then returns in variations, reversed, distorted. Where Miekl's

# The City Of Ultimate Freedom

opening formed order out of chaos, the city forms chaos out of order, dissolving into ten, a hundred, a thousand discordant voices, and finally into pure noise.

The movement is complete. Man and machine wait in silence. In the jury, whispered voices discuss the opening, speculating which was Miek'l's and which the machine's, until the randomizer rings out three new notes for the second movement.

In the second movement, Miek'l weaves the new notes into the theme. After a brief combat they fit in, adding another voice to the texture. In the city's movement, the new voice enters into the jungle of noise, weaving in and out, looking for a place to fit. The first theme returns, also looking, but no home can be found. Confusion remains. The first and second themes link together, making a single voice, but still cannot overcome the background.

And the randomizer intones the final two notes.

With difficulty, forcing the theme a bit, Miek'l weaves this, too, into the theme, the whole making a dazzling tapestry of sound. But it is flawed, forced, the third voice not quite fitting in. Now the first, now the second, now the last theme is heard, then they chorus together, a final statement of the theme.

In the city's composition, the final two-note theme enters, a voice crying out against chaos. The second theme, an octave down, comes in almost as an echo, and the first enters yet deeper. Then the chorus, a thousand voices struggling to be heard, struggling to make sense. And slowly it does, a whole begins to take form, a form so huge, so magnificent, that the audience cannot realize how they had been unable to hear it before. The individual voices all were variants of a single theme. They crash together in a final crescendo, a triumphant statement of theme, and then cut to silence.

The vote is clear. Although Miek'l had won the first movement, the machine's victory in the final movement was so overwhelming that the decision was unanimous.

And in the newspaper the notice of Miek'l's defeat is a little larger. Fragments of symphony, both Miek'l's and the machine's, float out across the air of the city.

In Edonna's performance niche, Paena again stops by to tell the sculptor the news. Edonna stops for a moment to listen, then silently returns to work.

But now there is a subdued excitement in the city: "Miek'l continues to challenge!" Where the city computer is father and mother and god all in one, this is a pride which surpasses all understanding, a hubris on the edge of madness.

—But Miek'l must certainly fail! And spend three months in the Primitive! That is outrageous, that is impossible. Three months outside the city? Three months living as primitive man lived? Can it be done? One month alone is punishment, two torture

—But what if Miek'l succeeds? Then Miek'l will be the master programmer for the city, Miek'l will be able to nullify the exile.

—But Miek'l cannot succeed.

—Nevertheless, think of it! A master programmer in Vadya! What could Miek'l not do?

—Don't be silly. What could Miek'l possibly want to do, that Miek'l, that any of us, cannot do already?

And this is true. The ancient master programmers were wise. The city is programmed to satisfy every desire of its citizens, save only that it cannot allow one to obstruct the freedoms of another, nor will it let one drain the full resources of the city. But the city's resources are unimaginable, and in fifty centuries

none has managed to strain them. There is nothing Miek'l could do as master programmer that Miek'l can not do as a citizen.

Except prove to himself that man is still the equal of machine.

And in sector three—Miek'l's sector—the citizens seem a little prouder, to go about their tasks with just a bit more spring in their step.

—Miek'l continues to challenge the city!

For the third challenge, Miek'l has once again chosen the maze. This time Miek'l plays without the easy grace of the first challenge, but instead with an intense concentration, a smoldering inward fire. There is nothing in the world except the challenger and the maze, which Miek'l thinks of as a being, the personal embodiment of the city. Miek'l zings across the maze with an explosive fury, changing directions instantaneously, diving down into the core and then erupting out into the surface.

If the city computer ever contemplated the game in some stray moment of abstract thought, it would consider the game an analog of its own function. The target ball races through the grid, just as its own citizens move through the city, moving with entirely free choice of action, yet constrained by the three dimensional gridwork of the cube, by the slowly changing pattern of obstructions, and most of all by the imperatives of their own nature. The city is used to predicting the actions of its citizens, in order to be ready with all necessary resources when requested, when needed, without perceptible pause between request and fulfillment. This is the city's pride.

To Miek'l it is a game of speed and reflexes, of instantaneous choices and lightning-fast reactions. To the computer, it is a game of calculation: given the target's past behavior, where is it likely to head next, and what is the optimum route for its own markers to get there first?

Miek'l sparkles, Miek'l flashes and dazzles, Miek'l blazes across the maze, darting and weaving in unpredictable patterns. Miek'l draws away from the computer's marker balls: five meters, ten, twenty.

As Miek'l draws further away, the range of strategy increases. Now the challenger must dive more often through the tangled center of the maze, seeking to force the other into pathways which are slower, and thus gain yet further. Thirty meters, fifty, a hundred. Miek'l seems to stick at a hundred, unable to increase the lead. Up, around, left, down, inward to the center, out to the surface, making choices as fast as Miek'l can think, flashing through the maze at incredible velocity. The city's markers follow tenaciously, a hundred meters away. Miek'l cannot gain ground on one without losing to the other. Down, around, across, up. A thousand meters will win the game, but Miek'l has only a tenth of that.

In, across, back, Up. After two hours of play Miek'l knows that it is hopeless. Across, up, across, down, inward, through the center, and out. Conceding, Miek'l makes a final race across the top of the maze and, reaching the edge, does not turn, but shoots off into space with a wild cry of exuberance and defiance. A thousand spectators watch Miek'l arc across the city, and fall.

But, of course, the city will not let Miek'l fall. Without altering the arc of Miek'l's trajectory, it slows the descent just enough to allow a soft landing.

Miek'l lands in front of the largest of the city's news posters. Even as Miek'l lands, it shows, in huge 3D motion, Miek'l's arc off the edge of the maze and fall across the sky of the city. The

# Absolute Magnitude MSFA

failed challenger bows to the audience and walks away. Miek'l walks slowly, but with head still held high.

In the performance niche, Edonna finishes conducting the symphony, and bows to the audience. The audience, like the musicians, consists of sculptures. The "real" audience will view the performance only in the 3D recordings. The sculpted musicians and audience form part of the artwork, and the music they play is the wild, atonal music which is the fashion of the time.

Back in Miek'l's rooms, the city machine talks softly. "I think you should prepare yourself for your trip to the Primitive, Miek'l."

Without looking up, Miek'l speaks. "I intend to challenge again, you know."

"I know," says the city machine. "I am looking forward to it. But you must first serve your time in Primitive. You are only permitted three successive days of challenge before your sentence must be served. Unless you claim an emergency requires immediate reprogramming. Is this an emergency?"

Perhaps for a moment Miek'l is tempted to lie, but that moment passes. "No," Miek'l says. "There is no emergency."

Arriving on duty, Paena stops for a moment to chat with the peace officer from the previous shift, Dai. Paena is humming a small tune, a fragment of Miek'l's symphony.

"You're smiling today," says Dai. "There's a bit of spring in your step."

"Yes," says Paena. "I think there is in the step of everybody from sector three."

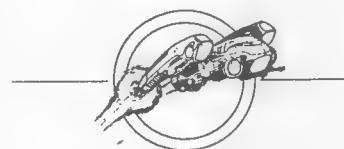
"Look around," says Dai, and waves at the thronging crowds of the city. "It's not just sector three. It's everybody."

It was true. Around the city, everybody walks with a bit more of a lighthearted walk, a trace more of joy in their expression.

"Miek'l will be three months in the Primitive for it, you know," says Dai.

"I know. But, oh! It was worth it! Don't you think so?"

"Yes," says Dai. "Perhaps it was."



## Tantalize yourself with tongue-tingling literature!

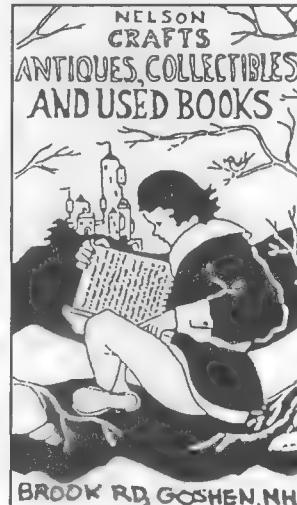
Order the **hottest** zine around! Inside, **chow down** on an interview with **spicy** Dr. Timothy Leary, **feast** on fiction by Bob Sloan, Brian Skinner, Linda Healy, R.T. Smith, and newcomer Mac Tonnies, and enjoy 44 **mouth-watering** pages of columns, artwork, poetry and book reviews! For a **tasty** copy, send \$3.50 made payable to Phantom Press (includes postage) to Kim Means, Editor, Phantom Press, 33 Court Street, New Haven, CT 06511.



\$ 3.50 SAMPLE ISSUE  
\$8 YEAR SUBSCRIPTION (3 ISSUES)  
\$16 2-YEAR SUBSCRIPTION (6 ISSUES)

# Next Phage

Uncommon Literature for Idealistic Visionaries



Attn:  
**Fantasy & Sci Fi Lovers!**

We have hundreds of early paperbacks and 1st edition hardcovers on our shelves or available, as well as later titles. Send your want list describing condition and edition requirements or visit Nelson's Used Books, Brook Road, Goshen, NH. We will search and quote as we find. No obligation. And please, no phone requests.

Author: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_

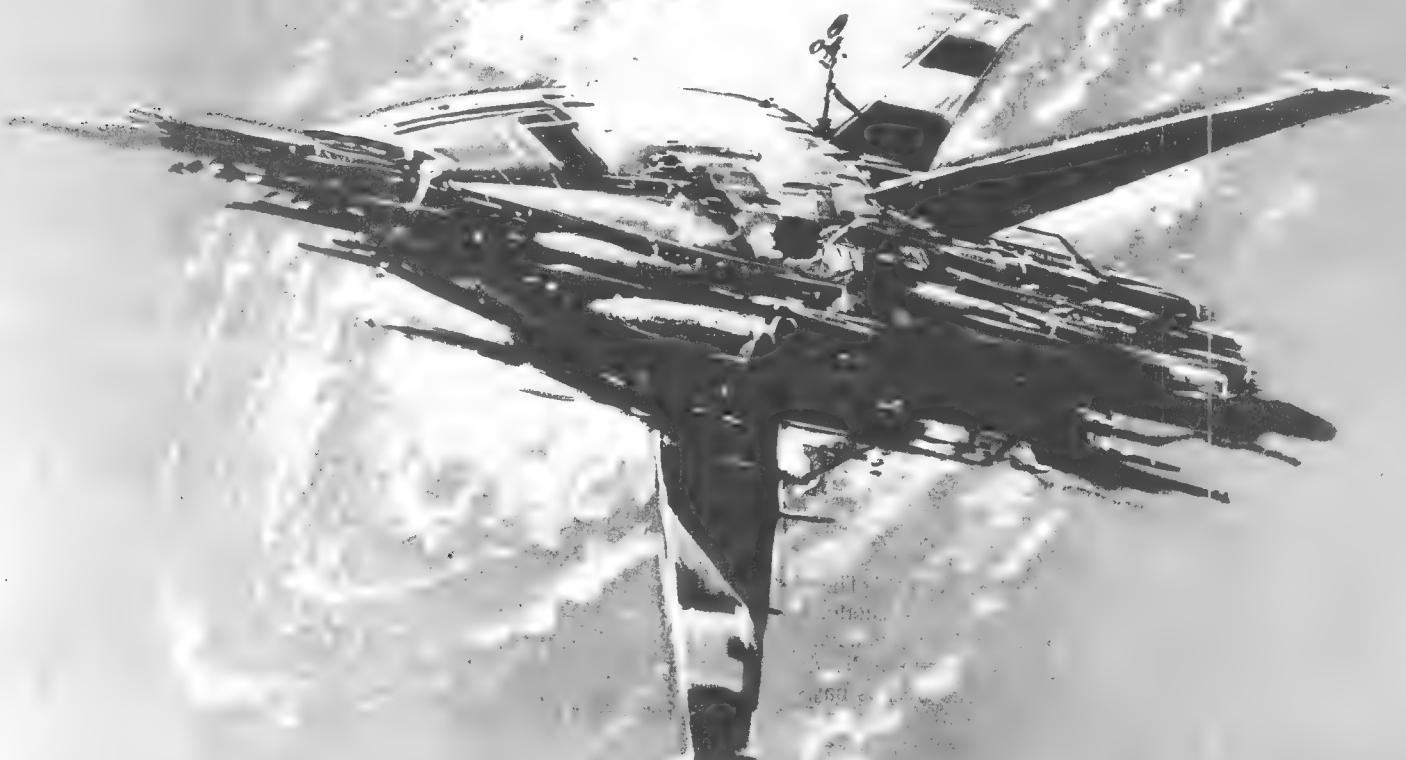
Price: \_\_\_\_\_

City: \_\_\_\_\_

Remarks: \_\_\_\_\_

State: \_\_\_\_\_ Zip: \_\_\_\_\_

Send to: Nelson Book Search,  
RR2, Box 212, Newport, NH 03773



869

## ROUNDUP

by  
Michael Johnson

Copyright © 1994

Fourteen seemed too young to be drafted into the Corps. But there was nothing R'ghin could do about it. He yanked on his rompers, zipped them up, locked his helmet. The visor flashed a test pattern; a brief, uncomfortable pulse squeezed his body as the rompers went through its self-test.

Then the simcomp thrust him and the seven boys into a dirtside village.

A mob of maddened Downsiders spat and jeered. A barrage of garbage splattered into the squad; a reek gathered in R'ghin's nose. The boys went wild, launching themselves into the mob with stunsticks swinging.

All except R'ghin. He stood slack-jawed, baffled. Real Downsiders don't act like that. He knew Downsiders; Franklyn, his best friend, was one.

Something cracked against his skull. Whirling about, he faced a Downsider who swung again. R'ghin dropped. His rompers locked up, immobilizing him—he was a kill.

The other boys dropped, too. Then the simcomp erased the enemy. Rompers unlocked. The boys detached their helmets; one bawled.

"Come on, pick yourselves up, men!" squad leader B'dang said. "You fight like you've never been in a gravity field before." They had been dirtside for only two days; their cityship legs hadn't adjusted to mining planet Lode 6.

R'ghin was dazed. "They're not like that."

"What do you know," one boy said. "You didn't help. No wonder we're not doing as well as the other squads."

"It's—it's propaganda," R'ghin said.

"Where do you get your facts, soldier?" B'dang asked. He was only one year older than R'ghin.

"My dad said so."

"Your dad!" he jeered.

"A Downsider lived with us."

A silence of suspicion fell. Though a tiny population of Downsiders lived in the cityship, filled with a million Freedomers like R'ghin, they kept to the Ghetto. The other thousand cityships in Denebola Hive had their ghettos, too. Freedomers shared space with the Downsiders only reluctantly.

B'dang looked at him coldly. "Maybe the one you lived with was different, soldier, but what you have seen here is based on fact."

R'ghin was afraid. "I didn't know him well."

That was a lie.

As they headed to the barracks, R'ghin remembered Franklyn's last day in Cityship 103. Before Franklyn was taken away—before he himself was taken away.

R'ghin sat on Franklyn's cot in the cramped bedroom. "I can visit you there, can't I?"

"No." Franklyn stuffed the last of his belongings into a bag with his thick arms. He spoke with the quaint accent of the Ghetto where he had grown up with his kind. "You wouldn't want to go dirtside. Besides, I don't know which lode planet they're moving me to."

"We could radio."

"They won't allow radios. They won't allow you one, either. Now that you're in the Recruits."

R'ghin dreaded service as much as he did losing Franklyn. "Then how are we going to stay friends?"

"Your Council doesn't want us to stay friends."

"But we've got to stay friends. Forever."

"This war will go on—forever. It'll take years for soldiers from Homeland to get here."

Homeland for Downsiders—they never thought of the ghettos scattered in Freedomer space as truly being home—was a distant region south of the galactic equator. "The first battle won't happen until you and I are old and gray."

"I don't understand."

"Your people are rounding us up for our own protection. To save us from those who've had their prejudice aggravated by our declaration of war." He looked at R'ghin with his dark, sad eyes. "Do you believe that?"

"I guess so."

"It's not true. They're moving us only to protect themselves. Your people think we are saboteurs, terrorists."

"My people!" R'ghin cried, hurt. "But we love you."

"Yes. I love you and I love your father." There were a few Freedomers who took Downsiders gladly into their lives. Franklyn had moved in with R'ghin's father not long after R'ghin was born.

"But they say you did something wrong. Did you?"

"You know me, friend. But they'll tell you otherwise in your training."

R'ghin folded his arms. "I don't want you to go."

Franklyn pulled a red bundle out of his bag. "This is yours."

R'ghin took the bundle, opened it. A focussant! The crystal pyramid gathered light and seemed to glow. "You're a telepath?"

Franklyn smiled grimly. "I don't keep secrets from you. This was my grandfather's. He was the telepath in the family. It's just a training device for those who might become telepaths."

A small slot was cut in its base. Tucked into its wrap was a tiny chatbox card. But it wasn't like the ones that gave a chatbox access to FreedomNet; it was keyed differently. Two of its ten credit dots were still bright orange; two sessions left.

The cityship police took Franklyn away that night.

That was a week ago.

After dinner, it was freetime. R'ghin lay on his bunk, recounting his misery. The boys didn't much like him from the start. With the revelation that a Downsider had lived in his home, things would only get worse.

He needed a way out—

Someone slapped his head. "Coming, soldier?" It was B'dang with the other boys. "We're going to pound Downsiders in the holo arcade."

"No. It's freetime."

"Fine," B'dang said. "Your skills don't need honing like ours do." The boys laughed, and they hustled out.

R'ghin gritted his teeth. The focussant. He had been allowed

# Absolute Magnitude MSFA

to bring 10 kilos of personal belongings to camp. Of course he had brought it. But would it work for him? He'd scored a miserable 40 on the Randi Test.

But if it worked—it might be a way out.

It was unlikely anyone would return early from freetime—the arcade was a powerful draw. But to be safe, he'd go Outside.

He pulled on his dirtsuit, strapped on his rebreather, took the red bundle from his locker. He stepped quickly through the empty corridor. The exit opened, closed behind him.

Night. Lamps erected around the distant mining pits lit the rubble at his boots faintly; there was always just enough light to see by.

Around the corner, he knelt down with his back to the weathershield. He took care with the chatbox card as the cold wind tried to wrestle it away.

It fit the slot.

Now what? He turned the pyramid over. Suddenly, a dimple of light in the crystal. No—in his eye.

The dimple became a rip in his field of view. It grew ragged and silken, a shimmering aurora. He could even feel it. Fluttering like a ship's stowaway moth, beating against a light panel.

It touched him inside, here, there. As if with a purpose.

The touch seemed familiar. A memory of Franklyn filled him, the strong arms, thick with dark hair, the olive-skinned face. The moth beat more strongly.

R'ghin.

Arms picked him up. Threw him high. He was flying. Below, long, low structures, like his own camp.

Then he knew. Franklyn was there! He was sure of it.

Now falling, gently. A roof loomed up below. He drifted through, a hand breaking spider web. An ill-lit room; a dark shape. Franklyn.

Yes.

Then the fluttering blinded him, and ceased.

He wrapped the crystal and card in their cloth—only one orange dot remained—and went back to his bunk.

He was confused. How could that have been Franklyn? He had denied being a telepath.

Thoughts of him kept R'ghin awake all night.

The next rompers session was Outside. A Downsider POW camp.

For once they caught the Downsiders by surprise. As the enemy fled, the boys began to pursue gleefully. But B'dang held them back; their goal was to free the prisoners.

They found the POWs dead. The enemy had tormented them horribly. When the boys saw this, they set upon the enemy again, but too late. The squad dropped only one Downsider.

B'dang stripped the rebreather off the dead man. "Have a good look."

R'ghin was horrified. The Downsider, smoldering in his laser-burnt dirtsuit, was Franklyn. R'ghin fell to his side.

"Praying for the enemy?" B'dang asked, poking him in the back. "Get up, soldier."

R'ghin stumbled to his feet. How had the simcomp come up with Franklyn's face? "That was my friend."

"Excuse me, soldier?"

"He was my friend."

"This proves it, doesn't it, what he really was?" B'dang began to walk off as if it were no surprise that R'ghin knew the dead man.

"But that was my—"

B'dang turned. "The simulations always use roundups. This

roundup, your *friend*" —he stressed the word with contempt—"is probably in the Downsider camp near here."

"But he isn't like that—"

"This is the way they are." B'dang's rebreather wheezed. "Listen to me, soldier—R'ghin." He put his hand on R'ghin's shoulder. "When you knew him, he was only play-acting—he wouldn't have survived on the cityship otherwise. But now that he's back with his people, he doesn't need to play-act anymore. He's just like all the rest."

"But—"

"Can you really trust him, knowing what you know about the enemy now?"

Then it hit him.

Franklyn had to be a telepath. It was the only explanation for the other night. He flushed with anger.

What else had Franklyn lied to him about?

In the next session, R'ghin didn't wait for the signal to begin. Franklyn's treason hurt him greatly. When the enemy appeared, he leaped out of formation, went wild.

Startled, B'dang regained his composure quickly. He gave the signal to move in behind R'ghin.

The boys overwhelmed the Downsiders in minutes. R'ghin licked three of them. None of the others had taken down so many.

B'dang approached R'ghin with an angry glare. "You don't break formation! You wait for my signal!"

R'ghin nodded. The flush of the win drained out of him.

"If this had been real, soldier, you would have gotten us killed. Yes, you surprised the enemy—but you also surprised your buddies."

"Ever hear of teamwork?" a boy yelled.

Fire pumped into R'ghin's cheeks.

"Okay, soldiers, game's over," B'dang said.

That night in freetime, R'ghin lay alone in the barracks. With his visor tapped into the net, he scanned topo maps of Lode 6, looking for the camp he had seen. Or trying to. Mostly, he was struggling with the idea of Franklyn as a traitor.

"R'ghin."

He raised the visor. B'dang. "It's freetime."

"I know. Listen, I was maybe too harsh today. You did go in with the right attitude. Whatever fired you up, keep it stoked." He smiled. "Maybe we'll beat the other squads yet."

The first kindness anyone had shown him. "It's my Downsider."

"I thought it might be. Servant?"

"No, my dad's suitemate." R'ghin understood B'dang's grimace. Suitemate was one step short of marriage.

"Well, you do know them better than any of us."

"I thought so, too." R'ghin sat up in his bunk. "But I was wrong."

B'dang's eyebrows lifted.

"Franklyn—my Downsider—is a telepath. He told me he wasn't, but he's been one all along."

B'dang scowled. "Freedom Council needs telepaths. But not Downsider ones. You should have said something sooner."

The Council treasured the few telepaths it had; because FTL travel was still science fiction, telepaths were the linchpins of the Commonwealth.

"I didn't think of that." An enemy telepath could wreak havoc. In fact, that was how the war started. A Ghetto telepath had reported to Homeland that the Freedoms were making the first FTL drive—though the Council denied it. Before long, the spy claimed, the Downsiders would become the Downtrodden.

# Roundup

"What proof do you have?"

"His focussant." He explained how he had gotten it; anger ran in his veins like hot solder.

B'dang turned away. "This is important stuff, soldier. Your Downsider, a spy." He turned back and looked at R'ghin with a piercing eye. "How can I believe you?"

He couldn't keep it secret any longer. Slipping off his visor, he scabbled under his cot. He unwrapped the crystal and handed it to B'dang.

B'dang's eyes lit up. He whispered, "You've really used it?"

R'ghin nodded. "And he's shown me where they're keeping him, the camp you told me about. We should tell somebody."

"Yes, we've got proof. But maybe we can use it to our advantage—to get ahead of the other squads. Nobody knows the secret of your Downsider. We can be heroes. We can be the ones to capture him."

"But he's already in a detention camp."

B'dang smiled. "The roundups aren't locked up like you might think. There are a hundred million Downsiders in the Denebola Hive. The best detention camp for them is an entire planet. Gravity is their prison guard."

"Why don't they attack us?"

"We have the guards. At the perimeter line a couple of klicks from here." B'dang put on his official look again. "This mission will accomplish two things, soldier. First, it will render a valuable service by uncovering an enemy agent. Second, and most important, it will prove—"

"—that we're not complete screwups."

"Exactly."

In the next freetime, B'dang explained the mission.

"We've pinpointed the camp. I've filed an exercise plan that says we're going beyond the perimeter for two hours. But once we've gained our real objective, we'll radio for help. All right?"

Everyone nodded. At first, the boys had been skeptical about a plan that centered on R'ghin. But when B'dang told them about his focussant, they were eager to get started. R'ghin enjoyed the new respect they gave him.

The next night, the boys slipped their stunsticks under their dirtsuits and headed out.

They had never marched far in such heavy gravity. Though R'ghin's legs had strengthened after several days dirtside, they toiled in the loose sand. His rebreather worked hard to condition the air. His mask fogged up. He grew hot.

Just when he couldn't stump along any longer, they stopped. They had reached a hilltop. Below them was the ramshackle weathershield of the roundup camp. The wind had ripped off whole panels of shielding. The infrastructure showed through, like the exposed roots of teeth. The wind sucked away all sound.

B'dang signaled.

R'ghin headed for a large outcrop. The others moved to a smaller one nearby.

He squatted down by the rock, his back to the wind. The sand was like fine flour; he nearly toppled backward as his heels sunk in. Grit whirled up around him; his teeth crunched sand.

He unwrapped the bundle. Carefully, he clamped the card with its last live dot between his knuckles; it wouldn't do to have it blow away. Then he pulled out the crystal with his chilled fingertips.

Already he saw the first glimmer.

But the wind whipped suddenly. He lurched into the rocks, clutching the focussant to his chest.

The wind snatched the card from him.

But the dimple continued to grow. A fluttering that touched him here, there—R'ghin. Outside. Why?

He was astonished. He didn't need the card at all! But he was fearful, too. Franklyn must be a powerful telepath. How could he hide his thoughts? Yet he went on with the plan. I want to see you.

Miss you, friend.

Friend. Sudden misgiving damped the fluttering. Was he doing the right thing? But a war was on. Come out.

Yes. Wait, friend.

R'ghin chewed the inside of his lip. Franklyn was just like all the other Downsiders. Everyone had said so. He bundled the crystal up, struggled to his feet. He signaled to B'dang.

The squad slid down the hill, split forces on either side of the weathershield's entrance. R'ghin stood on the crest. In the glow of the mining lights, he would be easily seen. The door opened, a square of blue light. Franklyn emerged. "R'ghin!" The wind tore at his words.

In R'ghin's head, a dam broke. He raced down the hill.

But before he could reach them, the boys leaped out. Stunsticks stabbed. Franklyn fell at once. But they did not let up—though the sticks discharged quickly, they continued to use them as clubs. Bringing them down hard, again and again.

"Stop!" R'ghin cried, ripping at their dirtsuits.

The boys stepped back. R'ghin knelt down. Bloody mud caked Franklyn's face, matted his hair.

"I'm sorry—we had to—" R'ghin faltered. No, they did not have to. They could have just told a superior. Maybe they would have been believed. Maybe Franklyn simply would have been put under closer watch.

Or maybe R'ghin just shouldn't have said anything at all. How far could friendship go? But now their friendship would go, could go, no farther. Franklyn was a traitor, but he felt himself a worse one.

"I'll radio for assistance," B'dang said. "We were just supposed to capture him," someone else said. The others were silent. Their punishment would be harsh.

"Why'd you say you weren't a telepath?" R'ghin's words drowned in sobs.

Franklyn's eyes opened slightly. "I told you the truth. You contacted me."

A chill went through him. "But I scored so low—"

"When you took the test, you hadn't yet trained with the focussant." Franklyn closed his eyes.

B'dang and the other boys heard Franklyn's words. They moved away fearfully from R'ghin and whispered among themselves.

A new flood of tears ran down R'ghin's cheeks; he'd made a mistake, a terrible mistake.

"I'm sorry—" he began. He searched the battered face for some sign of forgiveness. But it was expressionless: void of forgiveness, void even of pity.

Why had he believed what B'dang and the others had told him? Why hadn't he believed what his one true friend had said instead? You know me, friend. The memory of those words swept over him; it was the last cold ray of sunlight pushed before the racing clouds of a storm.

"Friend—" R'ghin began again, but his tongue was thick in his mouth.

Franklyn tensed, lay still. R'ghin saw a wingbeat of light flutter through his tears. For a moment he thought—

But the light grew into headlamps speeding toward them in the sky. Flying through sheets of blowing dust, the MP skimmers landed.





# SEISMIC SIDETRACK

by  
Hal Clement

Copyright © 1994

Maria Collos was feeling philosophical. This was in spite of her personal danger, which should have made her brush even the most basic personal strategy aside in favor of tactics.

Ignorance was not responsible; she knew about the ninety Kelvin ambient temperature and thirty hour charge in her life suit including time needed to get back to the Station. Increasingly frequent trembling of the ice underfoot hinted at still other perils, but her mind still wandered. Exhaustion had forced her to pause in her work, and she couldn't keep from thinking.

She was a sensible person, in spite of her present whereabouts. Her philosophy was basically sound, of the take-care-of-what-you-can-and-don't-worry-about-the-rest sort, but a what's-the-use germ was starting to attack it. She had come to Titan firmly convinced of the project's importance, despite its low chance of real success. She still felt sure that adding to humanity's store of knowledge—finding more pieces of the jigsaw puzzle which the physical-reality believers were so desperately trying to fit together—offered the only hope other than pure luck for her species' continuation. She realized that the concatenation of diseases now decimating humanity might in fact turn out to be mere statistical bad luck, but knowledge offered a brighter hope than resignation. Establishing that life could and did originate on its own from purely natural causes, as implied by the partly-assembled pieces found so far, was the specific assignment of the Titan group. It might not be a very promising goal, but the big satellite was the only body in the Solar system other than Jupiter and Earth where the phenomenon seemed likely to occur, and humanity was clutching at straws.

There was still no practical way to check out Jupiter, and it was too late to see it happen on Earth. However many thinkers might take the concept for granted, there were gaps in the assumed process; filling them *might* help what was left of humanity save itself.

But was this really worth doing?

Collos, now head of the project, was herself human and wanted very much to live. Presumably most other people felt the same way, though Arthur Goodell's example a few weeks before justified some doubt. If they did, then probably one should try...

Even when tired. She hadn't used to get this tired. She knew all about her own ailment, of course, and the knowledge widened the mental crack which was letting in the what's-the-use feelings; but she still had a patch for that leak.

This was a perfectly rational thought: If you quit, you'll never find out. If saving humanity were indeed worth any trouble, then quitting would obviously be a mistake; if it were not, and the fact finally became evident, one could always quit later. After the uselessness was actually demonstrated, of course.

And could life be useless if there were still ways to have fun, like finding things out?

She was certainly being useful right now. Alone on Titan's surface with the jet which had brought her down back in service

and, between shuttle flights, doing work of its own rather than waiting for her, showed that clearly enough. There was so much to be done down here, so much which had to be useful.

Work was going on. *crios*, she knew, had already restocked its mass tanks and was in orbit back to the Station, probably flown by Gene. *Theia* was in atmosphere dropping seismic cans or checking air circulation or something. *Oceanus*—well, that hadn't been her fault. In not too many hours Seichi Yakamo would relieve her on the ground here at Settlement Crater and *Crius*, after taking her back to the Station to rest and restock her suit, would descend again and resume adding details to Status' image of the satellite. Routine went on, in other words.

It was all Status' doing, actually. Goodell's death had brought the personnel count down to what the data handler considered a critical number, and it now insisted that time spent ferrying people back and forth from station to surface was wasteful as well as dangerous. It would be better in the long run to construct a base below and transfer everyone down for good. The extra commuting needed while construction lasted would be offset by time and probably personnel saved later.

When Maria and others had doubted this, Status had shown detailed calculations. These seemed to be correct, but only a bare majority of the surviving researchers had accepted them. The figures were emotionally negative, like those offered back in the days when human population was still rising, showing how long it would take to transform the earth into human flesh if current trends continued. The Saturn group consisted of scientists and engineers, better qualified than any supernaturalist to tell when a silly conclusion was due to faulty math and when to faulty assumptions, but its members still had the normal human difficulty in changing long-standing attitudes.

But there was no point sitting here brooding. Resting wouldn't, after all, really help Maria's fatigue, which had causes unrelated to how hard she was working, and delay would only lengthen the time being used—wasted?—on this construction. She moved back toward the tunnel mouth.

In front of her as she faced east was a vertical cliff some fifteen meters high. To the south its face descended gradually, merging with the crater floor about half a kilometer away and about as far from the central lake. Near this point lay the area where the jets had been landing. Northward the scarp seemed to grow higher, but how far this continued no one knew yet.

This ignorance was embarrassing to Maria, who had been responsible for the original mapping from orbit. A fault like this, which had to postdate the crater itself, should have been noticed by Status if not by herself. As it was, not even the pilots landing in the crater had seen it until after the decision to move down, when the crater had been mapped more carefully. Of course, their attention would have been taken up by other matters like landing, but still . . .

No one believed yet that it could have formed in the last few weeks. Most of its top showed the rusty-brown edge of the smog deposit which covered so much of Titan, but the ground

# Absolute Magnitude MSFA

at the foot was bare ice, and it must have taken time to wash away the original sediment. A few crusty deposits like candle drippings, presumably dissolved from the top of the cliff by rain and precipitated again at the foot by evaporation, were all that marred the level surface near the tunnel mouth. These presumably had taken a long time to form. Titan's surface was clearly being reworked by erosion, but there seemed no reason yet to suppose that this was happening any faster than on Earth.

She would have liked to see what the fault had done to the north rim of the crater, but firmly rejected the temptation to go and look. There should, after all, be a nicely detailed answer somewhere in the unexamined data above. Status might "know" the answer, in a sense; but the processor was neither omniscient nor imaginative. It would come up with correlations it had been told to seek, but never with theories; it could only criticize these.

On the other hand, if Maria herself seemed likely to be too far from the landing site when the jet came back, so that she might not reach orbit while her suit supplies lasted, the computer *would* foresee that and firmly recommend return before she got anywhere near the rim. Suits could not yet recharge on the surface. None of this was conscious thought for Maria at the moment, just background knowledge.

Status.

Just north of one of the small tar fans was the entrance to the tunnel she was digging. It was about two meters high, with a five centimeter sill of piled ice sand across the bottom, and about as wide. Equipment as well as suited people would have to get in eventually. It was dug in the clear, nearly pure low-pressure ice—ice I—which formed the lower two thirds of the cliff under the sediment layer. The latter was thinner than average here; one might use that to date the impact which had formed this crater—no, it was gone from the cliff foot, and there was no way even to guess how much the stuff on top had been affected by the same erosion. Or why there was a difference—never mind that now, Collos.

Back to work. Research and fun later. She stepped across the clear ice and the rill of liquid methane running southward along the foot of the scarp—it was raining—picked up the chipper, and turned it on. It hummed obediently, so she descended the twenty meters of completed tunnel and pressed it against the end wall. It resumed shaving and swallowing ice, and spitting the resulting powder toward the tunnel mouth behind her.

The group had learned; this machine had a double head and counter-rotating blades. It did not try to spin her in either direction no matter how hard she pressed against the wall.

She was getting more skillful in its use, too. It could only exhaust straight back, but she was now able to aim the heads most of the time so that "straight back" not only missed her suit but blew the dust all the way to the tunnel mouth, and she only had to pause every ten or fifteen minutes to clear her exit path. Her relief would bring a newly grown blower to handle that job, she had been told; most of the survivors could still do improvisational programming on equipment "seeds." The new factory now growing near the central lake nine hundred meters to the south even had locatable roots, a quality omitted from its predecessor. In two or three weeks it should also have produced a remotely controllable tunneler, and Maria and the others could get back to their proper, planned work.

She was angling the tunnel downward, and already had seven or eight meters of ice and sediment overhead. Human beings under Titanian gravity, she had noticed, seemed not to

feel much fear of cave-ins, a comforting if unrealistic attitude. It had started to change recently as ground tremors became more frequent, but she did her best to enjoy it. Details of the planned Base had not yet been completely worked out, but it would certainly have to be deep enough to be walled and ceiled by clear, seamless ice even if they decided to change to Titanian air pressure. The fallen smog layer was about as strong as sand except where methane rains had caused it to crust. While sturdier at such spots it would still not make a reliable ceiling even in local gravity and with balanced pressure.

The need for the downward slope had therefore been obvious. That for the sill at the tunnel mouth had not. The stream along the cliff face was intermittent, and had been dry when the digging started. Now there was methane sloshing around Maria's feet as she worked. Blowing this outside with the chipper had seemed an obvious solution when the liquid first trickled in, but the drops wouldn't fly as far as the denser ice chips in the heavy air. They settled to the floor and ran back downhill.

She had taken care of most of the problem by digging a sump a few meters back but this, unfortunately, had meant plastering some of the ceiling with an ice-methane mud which always chose the moment she was underneath to drop by handfuls onto her helmet. Water still did not bond closely to hydrocarbons, though the digger was also an effective blender. Maria still spent some of her work time distracted by thoughts on which of this new crop of unexpected trivia might turn out to be lethal.

She did what she could about that, reporting every action and its result to the Station and in the data processor to provide warnings.

"More vibration!" she called suddenly. Belvew replied.

"Could it be your chipper getting out of balance, or biting deeper with one head than the other?" Alternative hypotheses were a moral imperative on Titan; being too sure too soon—the Aarn Munro syndrome, as some classicist had long ago named it—had proved a fruitful source of trouble.

She turned off the machine as the most obvious way to test this one.

"Right, I guess, but—no, there it is again." She reactivated the digger and pressed it once more against the ice. The quivering stopped briefly, then resumed. "It's not that."

"Local quake? Titan still has plenty of tectonics, we know." This time it was Pete Martucci.

"Wouldn't the seismometers be telling us?"

"Not necessarily," Status' calm voice answered. "Seismic events have occurred often since the first can line began reporting, and are presumably regular Titan phenomena. However, the outer ice layer does not carry waves as quickly as silicate rock. None of the lines is close enough to Settlement Crater for an epicenter under that point to be recorded promptly. I suggest you leave the tunnel until that idea can be checked, Commander Collos."

"But that'll delay—"

"Not as much as would the collapse of the tunnel, and it would be better for the overall project if you observed such an event from outside."

"Yes! For Reason's sake get out of there!" snapped Belvew. "And if you want to remind me that Arthur left you in charge, do it as you run!"

"Why didn't you mention the quakes before we started the tunnel, and if you knew about them why did you plan an

# Seismic Sidetrack

underground Station at all?" interjected Yakamo. It was obvious to all, including the machine, whom he was addressing.

"Because no tremor has yet approached an intensity likely to damage the sort of structure we plan, and—"

"Then why did you order me outside?" snapped Maria, without slowing her pace back to open air.

"Because theory must yield to observation, and this is our first chance to observe the actual effect of such an event on anything like the proposed structure." No one tried to argue this point; Maria changed the subject.

"I'm outside," she reported. "The rain seems to have stopped, if that matters to anyone."

"It may be relevant," Status commented, apparently recognizing no irony. "Most of the quakes recorded in detail so far have originated at the Ice I-Ice III interface, and redistribution of surface mass caused by rain, with resulting changes in deep pressure, could well be the basic cause. The correlation is statistically—"

"All right, keep track of it. When can I get back to work? I'm still using oxygen, you know."

"I know. It will take nearly twenty minutes for a wave front starting at your coordinates to pass enough network stations for reliable analysis. Are there any new local data which you could report? That might speed a possible decision."

Maria looked around thoughtfully. As she had said, the rain seemed to have ceased. So, not too surprisingly, had the rill trickling along the foot of the cliff. She had already dismissed this as just part of the drainage pattern which returned most of the crater's rainfall to the central lake and made Settlement Crater a nearly closed weather system.

Water ice is too polar to be at all soluble in liquid methane, and Maria had not been surprised that the temporary brook showed no signs of having cut into the foot of the cliff, not even when she was thinking of possible ways to date the latter. Neither had Ginger Xalco, who had been first on the scene and had started the tunnel. Now something she didn't remember seeing earlier caught Maria's eye, and she looked at it thoughtfully for a moment.

"Ginger!"

"Yes?"

"When you started to dig, I know there was no stream along the cliff, so there was no reason to make a sill. Did you start the hole right at the bottom of the face, or a little bit up?"

"At the bottom, of course. We agreed on that, remember? We didn't want anything to interfere with bringing heavy stuff inside. It was just starting to rain when you took over, and you had water—I mean methane—inside in two or three minutes. That's why you had to make the sill."

"That's how I remember it. Now I see about three millimeters of cliff outside and *below* the sill. Status, how fast could that stream eat its way down—remembering that it doesn't seem to undermine the cliff or cut the ground at all?"

"It couldn't." Two voices besides that of the computer answered simultaneously.

"Then what, besides a three millimeter lift of the cliff itself since I built the sill, could have happened here?"

Neither Status nor anyone else answered that one. Maria thought furiously for some seconds—no more furiously than any of the others, but she spoke first.

"Status, what summary do we have on this crater? And how far back does the information go?"

"I assume you mean in time," the computer answered. "There is very little, actually. The area had not been covered by the regular mapping program when Commander Goodell first

centered his attention on it. His original data came from jet-based pictures taken from altitudes too high for good data, because of poor air transparency and the jet camera resolution. When he became really interested in the site he secured more material from orbit without calling either your attention or mine to it; I now find that I have good pictures over a period of about one Titan orbit, ending about eighty hours before his landing. I cannot show you these where you are; you would have to come up here or at least board a jet. I can, of course, give verbal and numerical descriptions. If someone will make appropriate requests I can present current data quite soon."

"What I want to find out is how high this cliff was when Arthur did the area, and most important, whether that height has changed enough to measure since then."

"I can answer that immediately, since I have your description of the cliff. It was not there at all when Commander Goodell made his investigation."

"And you never noticed the difference when we started to dig?" asked Yakamo.

"The matter was not specifically brought to my attention. Commander Goodell had not filed his information with the regular survey records, so I did not include it in my ongoing comparisons. When the scarp was first noticed and selected for the tunnel site there was therefore nothing to compare it with."

Martia cut in. "We understand that. Now, Status, do everything you can to make sense out of the fact that the cliff is *here now*. Especially, tie it in as closely as you can with all the seismic data we have; it looks as though Titan may be alive in a very different sense from what the Project had in mind. And check over all the surface data we have, from the very beginning, to see whether anything of this sort has been happening anywhere we do have records for. Have quake waves from this area reached any of the cans yet?"

"Nothing identifiable as such. As I said, there is frequent seismic activity. What you ask will take some time—not much for record search, but possibly a great deal for comparison and analysis."

"Just a moment. Another question. There's some more vibration—Status, I'm at the foot of the cliff, on the side of the fault which should be staying put or going down. It's the *cliff* which should be rising. Why was I just tossed into the air?"

The living listeners, the ones with imaginations, said nothing; each was furiously seeking a reasonable, or at least possible, answer to this question. Status alone replied, posing another question which could not have been more annoying to Maria if it had actually been guided by malice.

"How high were you thrown?"

She yielded for a moment to the irritation and answered sarcastically, "Seventy two point three one four millimeters."

"Center of gravity or boot soles? and how was that measured?"

"Disregard that datum." She had command of herself again. She was also back on the surface, still standing, and for a moment thought of using her time off the ground to calculate the height she had reached. Then she realized she had no accurate estimate of that, either. But even a guess would mean something, she reflected. "I was off the ground about three seconds. That's only an estimate."

"Were your legs straight, or equally bent before and after the event?"

"Straight. I was simply standing when it happened."

"Then you were lifted approximately one hundred fifty-one centimeters, with an uncertainty depending on the square root of your time estimate error. With your suited mass of two

# Absolute Magnitude MSFA

hundred ten kilograms, the force against your feet must have been—”

“Dammit, I don’t care about that. I’m on the *down* side of the cliff. Why was I thrown *up*? ”

Belvew beat the computer to a response. “Has the three millimeters of cliff under the sill changed? ” Maria had to pause to check before answering; being hurled into the air, even when one comes straight down again in practically the same place, is disconcerting.

“It’s *about* the same. I only estimated it before.”

Status cut in. “I advise setting up two more lines of seismometers each one hundred kilometers long, at right angles to each other, and intersecting as close to the center of Settlement Crater as may be practical. There are enough cans already manufactured to do this.”

“Where? ” asked Belvew.

“Aboard *Crius*. ”

“Which is headed up to you. Are there any on *Theia*? ”

“Enough for about half of one of the lines I suggested. ”

Maria made an instant decision, and used her authority. Like the others, she needed no explanation why Status wanted the on-the-spot deep scan. “Get *Theia* here as fast as possible, and have it make the two lines with four times normal can spacing. You can get lots of information, even if resolution won’t be as high—blast! I just got tossed again. We *are* really having quakes. And this time the three millimeters went up to about five. The cliff went up; I should have had the ground drop from under me, if anything. What’s happening? ”

“How high were you thrown this time? ”

“Is there another cliff somewhere behind you? ” came the questions of Status and Belvew simultaneously.

“I didn’t notice this time, either. ” Collos took the machine’s question first. “I wasn’t expecting it. Get that jet over here! Who’s driving it now? ”

“I have it. On the way, ” responded Ginger Xalco’s voice. Belvew repeated his question.

“I haven’t seen one, but if I’m on the high side and it’s any distance away I wouldn’t expect to. Which is more important, Status? Going west to find another fault, which is probably there but probably not important, or getting back to work on the tunnel? ”

“Stay out of there! ” Ginger and Belvew’s cries were almost together.

“Check the tunnel as far as you can see without actually entering it, for evidence of new faults, ” was the computer’s contribution.

Maria glanced toward the top of the scarp, and then to each side along its foot. Neither ice nor sediment seemed to have been shaken down by the recent shocks; and if anything were, she reflected, it wouldn’t be falling far or fast. She could dodge, and if she didn’t dodge fast enough the stuff wasn’t likely to be dangerous. They did need to know as soon as possible whether the whole idea of an underground station would have to be abandoned. Could they build any sort of surface structure? How? From what materials?

The choices were ice and smog sediment—tar dust. She was distracted from the problem for a moment as the ground trembled again, not hard enough this time to throw her clear of it. Aftershock? Was the show nearly over? Would Status be able to decide about that even with the new lines in place?

The computer was not, of course, infallible; should she follow its rulings—no, suggestions—uncritically?

Of course not; but she couldn’t act without them, either. She resisted the urge to call Ginger to hurry; *Theia* was, she was sure, at full thrust already.

“Any faults in the tunnel? ” Belvew’s voice recalled her to the present.

She approached the opening, and, after a moment’s hesitation, took a single step inside. At least the sediment at the cliff top, which seemed more likely than the ice to be knocked free by any more temblors—it was a dirt-compared-to-rock situation, really—wouldn’t hit her here. She examined the tunnel walls carefully with the aid of a hand light. Even Titanian outdoor light below the smog was seven or eight stops darker than a sunlit Earth landscape.

“I can’t see anything, ” she said at last. “The walls aren’t perfectly smooth, but the only grooves I can see are along them. I must have made them myself with the digger. ”

“You should resume digging, ” said Status calmly.

“No you don’t! ” Belvew almost screamed. Maria frowned silently for a moment.

“Sorry, Gene, ” she said. “We need the new station. ”

“Not the way we need live brains! ”

“I think it’s safe enough. ”

“How safe is safe enough—oh. ” The man fell silent. The commander gave no answer, but started back down the tunnel.

“You wouldn’t have let me do it. ” Gene’s voice was much quieter.

“You don’t know that. ” Maria resumed work with the chipper.

“Nehemiah Scudder didn’t know the earth was made in six days. ” Belvew omitted the “he just believed it” part of the remark; there was no point either in being grossly insulting or leaving himself open to a devastating retort. Maria probably wouldn’t have made one, but still...

The rest of the group were all listening, after all.

“I’ll be there in about ten minutes, ” Ginger interjected tactfully. “I’m letting down now. Status, does the absolute direction of the can lines matter? You said to make them at right angles to each other, but nothing more. ”

“Even the right angle needn’t be exact, ” was the answer. “In any case, the absolute orientation will be known when we calibrate them. You can drop the first line on your initial pass over the crater. ”

“Only if you tell me when I’m at the right distance. I know I’m heading right, but I can’t see far enough ahead to spot the crater from fifty k’s out. ”

“I can take care of that, ” came Martucci’s voice. “I have your position and vector through one of the relays—the Station is below your horizon. Tell me when you’re down to drop height. ”

“Five more seconds, ” the pilot answered promptly.

“Then cut to sowing speed right now, or you’ll overshoot. ”

“Right. ” Both speakers were physically in the Station, of course; it would have been easier to let Pete take over the jet directly had he been competent to fly it. No one mentioned this.

“You start to drop in six minutes from—NOW. Remember the wide gap on these lines; is your intervalometer reset? ”

“It is now. Thanks. Maria, any more bolts? ”

“Yes, but nothing to send me off the floor. ”

“And nothing to shear the tunnel? ” asked Belvew.

There was a brief pause while the digger looked back along the bore. “Nothing I can see inside. Ginger, is anything funny ahead? The sky looks paler than usual, at least the little bit I can see through the entrance. ”

## Seismic Sidetrack

"Nothing shows from here. Not even the crater, yet. The sky from here is the usual orange-tan, or whatever you like to call it, with a few cumulus. Maybe you're seeing one of those."

"Maybe. I can check that out later. I'll dig until I have to rest again, or until there's some other reason to go outside. Everything here seems solid enough, now that the mud I plastered on the ceiling has all fallen back down. The real shocks seem to have stopped, but there's a fairly steady continuing vibration."

"Keep an eye on the tunnel mouth," Gene suggested. "If the notion along that fault reverses, you could be in a fairly tight pot."

"Why should it do that? Do they ever?"

"Ask me again when I know why it's there at all—I mean in detail; we already know Titan builds mountains."

"And why should I worry? I have the digger with me, and here's only a few meters of ice overhead."

"You can't go straight up. I doubt if you can slant up at twenty degrees. That reads *quite* a few meters of tunnel. Think time, not distance—Commander."

"True. I have about twenty-eight hours to go in this suit before tapping emergency storage, and two after that."

"And that includes two or three to get up here, depending on when you start. At least, take your breaks outside."

"We should have built recharging equipment into the jets," remarked Martucci.

"There are a lot of things we'd have done if we'd known enough." Anyone, including Peter himself, could have made that remark, and most of them did; Seichi beat the rest by a split second. There was silence for a few minutes while Maria continued to chip ice and Ginger's aircraft approached Settlement Crater.

"Twenty seconds to first drop. You're on heading, assuming no wind," Peter announced at last.

"A Titan hurricane wouldn't make that much difference. We've set start and interval—there goes the first!"

"Can you see the crater yet?"

"Not at fifty kilometers. I'd guess visibility about twenty, ordinary for this height. I'd rather not play with wave lengths while I fly a line; you're all getting the same picture, though. Some of you can try for more penetration."

Again Seichi was first; he had probably been scanning the spectrum before Ginger had made her suggestion.

"I have the crater. You're headed all right, Ginger. There's something funny there, though."

"What?" again several voices overlapped.

"A very low cloud, I'd say, nearly white in this wave band. It has a very sharp, straight edge on the west side, running almost north and south. It starts about a kilometer south and three west of the lake, less than a kilometer from the near rim, and runs nearly straight north into the northwest wall. It's interrupted here, but resumes and continues for at least one crater diameter—seven kilos or so—outside. The cloud itself is about two or three kilos wide, though the east side is a lot less sharp. It fades out pretty well by the time it reaches the north-south diameter of the ring, so I can see the lake all right. That may be what's lightening your sky, Maria."

"Should I investigate, or lay out the cans first?"

"The cans." Status' voice of course showed no emotion, but the answer came quickly enough to sound emphatic.

"That's three quarters of an hour at standard. Maria—Commander—maybe you should go outside and at least take a look," suggested Belvew. "The only clouds I've

ever seen here are cumulus, formed over lakes and raining back into them or near them. This isn't connected with the lake."

"Status?" Maria uttered the one word.

"Sergeant Belvew is probably right. There is a good chance you can obtain useful data."

"And a better chance of your living though the next big shock." Gene made no effort to keep the words to himself, but no one else commented on them. Not even Maria.

She kept the chipper with her as she leaned forward twenty degrees or so to Titan walking attitude and started back up the tunnel. The visible area of sky increased as she approached the entrance, but to her surprise she could distinguish no ground even when she was within a few meters of the opening and her line of sight over the sill was very clearly downward. Surely the cliff hadn't . . .

There was nothing but the vaguely orange-tinted grey, much lighter than the familiar color produced by the suspended smog—tar—particles constantly forming high above.

Only when she was outside and several meters from the scarp did the regular orange-tan become visible to the east, beyond the cliff. Overhead and to the west the color paled steadily until, looking toward where the horizon should be, there was only a featureless and impenetrable near-white.

"I can see it now. It's moving. It's blowing from west to east," came Ginger's voice. "There must be some wind. Can you tell, Maria?"

The commander took a glovefull of the ice dust which had been blown from the tunnel, raised it to helmet level, faced south, and let it spill from her palm.

"Yes. Not much, even for Titan, but the air's moving east. More to the point, the surface west of me has been covered with something; it's almost white, too. That's why I thought I couldn't see the ground from inside the tunnel. It's as near as no matter the same color and brightness as the sky in that direction."

"Are you still sensing vibrations?" asked Status.

Maria paused before answering. "Yes. I'm getting used to it, I'm afraid. I may not be able to give an objective report about it before long."

"I suggest you walk slowly westward, looking for changes in visibility and thickness of the white ground covering as you go, Commander."

"All right."

"Hold it!" It was Gene, of course. "If visibility goes down too far, how do you keep track of direction?"

"You can be observed and guided from the jet," the computer pointed out. There could have had been no insult intended in its use of "you" rather "she," but Belvew felt snubbed just the same.

"I've started," was Maria's only comment.

A human being fully equipped with environment gear can make a standing broad jump of four or five meters on Titan, if he doesn't care which way up he lands. A walker reasonably careful about keeping helmet upward and at least one foot fairly near the ground will take nearly a second to make a one-meter stride. This is about four kilometers an hour, considerably less than the speed of a healthy young adult on Earth. This is not in spite of the gravity on the satellite, but because of it. There were now few healthy young adults on Earth, and still fewer on Titan, but Maria could make reasonable speed by her colleagues' standards.

By the time Ginger had finished laying the seismic detectors, therefore, Maria was nearing what Seichi had described as the west edge of the "cloud." By this time she felt sure, and had

# Absolute Magnitude MSFA

reported, that it consisted of solid particles far too small to see individually, but large enough to settle fairly quickly even here. They now formed a layer two or three centimeters deep under her feet, hiding the smog sediment which might have extended for as much deeper, or a whole meter, or fifty meters, or not been there at all. Its thickness, they now knew, varied widely over Titan's surface. It had been moved—drifted?—extensively, settling very slowly as ultrafine dust. Even Titan's negligible winds could move it easily until it finally caked in the methane rains.

The most reasonable guess at the white stuff's identity was water ice, but no one had suggested a plausible origin for it. This was only partly because of earlier experience with other white powders observed to freeze on wings.

Ginger, her run finished, was flying perhaps imprudently low along the west edge of the cloud, but could make out no real details. It was Maria who got the first good enough look at the source to feed hungry imaginations.

She could not, afterward, deny that there had been some warning. A gradually increasing roar which she had unthinkingly attributed to *Theia*, and a steady, faint quivering of the surface underfoot which she soon tuned out should have alerted her.

Almost suddenly, within the space of a few steps, she found herself seeing the familiar near-orange sky in all directions overhead. The dense white fog now reached only to her shoulders, swirling gently around her body in what passed for a high wind here; thinner, more transparent fluff still reached several meters above her, but she could see a horizon of sorts. A few meters ahead, beyond the drifting white, the ground showed in its usual smog color, about the same tint as the sky but much darker except where bare patches of ice were exposed. None of the "pools" was in sight.

Her eyes had just registered that the surface ahead was lower than the one she was walking on when her feet made the same discovery. She stepped over the edge of another fault.

The fall would have been only about a meter if she had simply fallen. Instead, she was hurled upward by a blast of wind; not violently and not far before starting down, but she made an almost complete back somersault, landing mostly on her shoulders on a bare patch of ice. Her helmet took some of the impact, and for a moment she felt a terrifying chill which was fortunately subjective.

She brought herself upright with a push of her left hand and looked around.

She had left the vision-hampering cloud. Westward, as she had seen before stepping over the edge, the bare ground extended to the crater wall half a kilometer away. To the east was a smooth vertical step a meter or so high, whose face was almost totally hidden by roiling streams of white which spewed, also vertically, from a narrow crack at its base. Maria started to approach it, remembered the upward kick, became conscious of the roar, and stopped to report before getting any closer.

"I'm out of the cloud, Ginger. Can you see me? There's another fault here, open, with something blowing up at its edge. It's the cloud source, I'd say. My best guess is still ice dust, but we need labs here pronto."

"I'm a couple of minutes no Titan, but the air's moving east. More to the point, the surface west of me has been covered with something; it's almost white, too. That's why I thought I couldn't see the ground from inside the tunnel. It's as near as no matter the same color and brightness as the sky in that direction."

"Are you still sensing vibrations?" asked Status.

Maria paused before answering. "Yes. I'm getting used to it, I'm afraid. I may not be able to give an objective report about it before long."

"I suggest you - should I land and plant them properly?"

"Take a chance with them from where you are," Belvew advised. "They're more replaceable than *Theia*."

The commander agreed, adding, "Don't get down too close to stall—any kind of stall—and don't get below five hundred. There's an updraft at the fault strong enough to pick me up. Drop to the west; that's into what wind there is and will take a little from the impact's horizontal component, at least."

"All right." The commander watched the jet bank overhead and thunder eastward over the whiteness. Its deeper sound, she now realized, could easily be distinguished from the whistle of gas from the crevice. After dwindling for a minute it swung back, heading not exactly toward her but a little to her left.

"I don't suppose there's much chance of damaging you with either of these," the pilot said conversationally, "but let's plan for a clear miss."

"I could dodge, or shelter near the cliff, but thanks for the thought. Are you dropping on this pass?"

"Yes." The craft swelled in the commander's field of vision and the thunder of its ramjets made parts of Maria's suit vibrate. Ginger was not risking a stall even of the pipes, much less the wings, and of course didn't want to waste mass by using rocket mode. The commander saw the two black dots separate from the hull scarcely a second apart; the pilot seemed to have confidence in her bombing skill. This proved justified. The first lab vanished into the cloud sixty or seventy meters east of the step, and the second struck a little farther from the fault than Maria was standing. It rolled to a stop about fifty meters northwest of her. She moved quickly toward it and watched with relief as it extended its sampling appendages and got to work.

"Someone read those as fast as you can, especially the one in the snow," she ordered.

"I'm handling it," came the voice of Cheru Asagewa, who was gradually working his way into Goodell's former jobs. "It'll be a few minutes at least."

"Right. If it's something weird like the vinyl in the pools let's find out the first time." The voice, to the surprise of some, was Ginger's rather than Gene's.

"Commander, can you provide more data on this cloud-emitting fault?" queried Status. "It is impossible so far to set up a coherent picture. Specifically, can you judge the width of the opening and flow rate of the escaping gas?"

"I'll try. It was fast enough to lift me, though not very far. If Ginger will measure the wind, I, or you, may be able to figure out something from how high the stuff rises before it gets blown east."

"All right. That'll be a few minutes, too," replied the pilot. Maria stood still; she was presumably the most visible small surface object in the area, and Ginger might want to use her as a reference marker. Even if she didn't, moving was becoming hard work; another spell of fatigue was approaching, she could tell. It didn't matter much; she could examine the fault from where she stood.

"The crack at the foot of the step is very narrow, not more than a millimeter or two," she reported. "Right where it opens, the cloud is too dense to let me see through it, except in glimpses. A few centimeters higher it thins out, and I can see turbulence in the gas currents."

"What's the face of the scarp show?" asked Seichi.

## Seismic Sidetrack

"Plain ice up to about seventy-five centimeters, then smog sediment, then a couple of centimeters of white—I suppose the same stuff that makes the cloud. Cheru, when you get a chance walk the lab that's in the cloud eastward—no, forget it. I'll pick up the other and put it on the top at the edge."

Not even Belvew remembered the updraft soon enough. Maria herself was not lifted this time, but felt the trivial weight of the spheroid she was carrying disappear as she was about to place it on the white rim. A moment later she gave a grunt of surprise, which naturally produced a response from Gene.

"What's happening?"

"More trivia," was the calm answer. "The lab was lifted out of my hand as I started to put it through the cloud. Now it's bobbing around in the air about six or eight centimeters above the cliff and about a meter to the right of where I was reaching in. It's oscillating about ten centimeters each way north and south, about three east and west and about the same up and down. I've seen that sort of thing before, of course; I just wasn't expecting it."

"What? Oh, Bernoulli effect." Belvew's pilot experience responded to the description. "Status, there's the information you need about the updraft speed. You know the mass, area, and shape of the lab."

"I will have to assume the gas density is the same as that of the general atmosphere," the robot pointed out. "It probably is, that far above the vent, if the commander is right about the turbulence. She has just over twenty hours to suit emergency status; she has been using more oxygen than usual."

No one was particularly surprised at Status' sudden change of subject. The processor's top priority was the physical status of the team members.

"Thank you," Maria acknowledged. "Charu, should I put the lab in the snow, or leave it where it is while you run a gas analysis."

"Gas by all means. That'll let us check Status' guess. I have some readings from the other lab now, but I don't understand them all."

"What's the trouble?" came several voices.

"The elements in the white stuff are hydrogen and oxygen and nothing else. It should be water, ice I at this pressure, but shows no crystal structure at all. There's just a diffraction blur corresponding to H-O bond length—"

"How about oxygen-oxygen?" again several voices sounded most at once.

"It is *not* hydrogen peroxide. No O-O bonds. I said it showed *no* structure, like a liquid or a gas." The chemist's tone, and even his voice, for a moment took on a surprising similarity to those of Arthur Goodell; once again Maria felt a chill not due to her surroundings.

"You have no ideas right now," she said, trying to keep any questioning intonation out of her voice.

"Not right now. I'm running the gas check now. Do you need that, or shall I just file it with Status?"

"File it." Maria made another quick decision. "I should be doing something besides listening. Status, will it be better for me to go back to digging, or should I explore along this new fault? My guess is that it would be better to let you build structures from the new seismic lines before we run that tunnel any deeper."

"The fault can be mapped adequately from above," the processor answered promptly. "The cliff in which we started the tunnel is now partly obscured by the cloud, and it would be valuable to check any of its recent changes. We have reason to believe now that these may be very rapid. I suggest you go

back to the east but make no attempt to seek the tunnel itself. You still have the digger, I believe. Rather, bear to the south—"

"Why not the north? Wouldn't the region of the crater rim give us more information?"

"It probably would, but that would take you farther from any practical landing area, especially if the cloud continues to move eastward. I have just reminded you of the limitations of your suit."

"You don't think the information would be worth the risk?"

"No." The answer was in Status' calm voice; Belvew, to the surprise of the commander and several others, said nothing.

"All right. Ginger, have you had time to make the wind check? Is it all right for me to move?"

"I wasn't using you. There are places along the fault where there are fountains, if that's the word I want—anyway, the stuff isn't blowing up equally high everywhere, so I had plenty of reference points; and for one component I dopplered on the cliff face. Your wind is seventy-one point one centimeters a second from two-eighty-four absolute."

"All right. Status, you can fit that in. I'm jumping the face—I'm being careful, Gene—and heading southeast. Ginger, get whatever Status asks for that you can manage without risking the plane. Between its requests, just map. Pete, track me. There's no profit in my walking around in circles. There must be some radiation that can see through this stuff—after all, I was never out of talk contact."

"Right, boss. Any reading will take a minute or two; I'll have to average half a dozen. If you want a direction it'll take even longer, but I don't think there's any chance of losing you."

"Neither does Status, apparently, or I'd be sent south around the cloud. I won't need direction for a while; I can look back at my own tracks in the snow and tell whether I'm circling."

"Have you checked that, or is it theory?" asked Belvew.

"I'm checking it now. It seems to work."

"Your tracks aren't being blown out by the wind?"

"Not for as far back as I can see."

"Which is how far?"

"Twenty or thirty meters. That should improve as I get farther from the source and the cloud thins."

Gene said nothing to this, but Maria was not the only one who realized how the word "should," which she had carefully not emphasized, was affecting him. She suspected that Martucci was not the only operator tracking her, and hoped Belvew's regular work wouldn't suffer.

On Earth, being lost in a blizzard has been deadly to many explorers of the planet's mountains and pole caps. It has even killed blissfully ignorant people engaged in casual amusement within a few kilometers of safety. Martia Collos was not ignorant and was well over a billion kilometers from anything like a really safe place, but felt no real terror. She didn't expect to see Earth again anyway; there had been nothing surprising in Barn Inger's death, nor in Arthur Goodell's except his own cooperation with it, or any of the earlier ones. There would be nothing surprising in hers when it came, though she hoped this would not be until she had done something else useful—and learned just a little more.

In any case, while she was immersed in a blizzard and could see nothing but blowing whiteness, she did not consider herself lost. Not just yet. Hiking a hundred meters, turning and looking back to see that her trail was straight, and repeating the process for several kilometers was more boring than immediately useful, but every scientist lives with this. Status'

# Absolute Magnitude MSFA

occasional personal report such as "You now have nineteen hours before emergency status" relieved the boredom but was not otherwise helpful. This was also true of the occasional seismic shocks, two of which in the first hour were violent enough to throw her off her feet.

There had to be something odd going on. The area of the first factory had experienced nothing of this sort in the months since its establishment. Barn Inger's death had occurred there, but could not be blamed on quakes. Goodell's had occurred here, in Settlement crater, but there was surely no connection—.

No. Definitely none. None that Maria Collos could see, or that anyone else had suggested.

The white dust thinned as she drew farther from its source, and the sky started to show a trace of its natural color, though the wind seemed unchanged. The thickness of the white deposit underfoot, determined by scraping down to the substrate with a boot, had decreased to about a centimeter.

Her back, she suddenly noticed, felt warmer than her front. That was odd; the wind was mostly from behind her, and if her suit's temperature-balancing gear wasn't on the job her back should be colder. Another trivium—perhaps. There was little else to think about, so she considered the problem for a time.

"Radar spots four more faults on the crater floor in the last hour," came Yakama's voice. "All of them nearly north and south, with the high side facing west. The tunnel scarp is now half a meter higher."

"How about the tunnel itself?" asked Maria.

"Can't tell. No sign of collapse of the region above it. Maybe you should go back north and see."

"Status? Relative value of such information?"

"Keep on your present track. Changes around the lake and Arthur's Pool will probably be more important."

"Have any been seen?"

"The lake's area has decreased slightly, a little less than one percent. Arthur's Pool is changing color; its long-wave reflectivity is increasing."

"His suit hasn't reappeared, or anything like that, has it?"

"No. It is a change in the general surface, not just a small spot affecting the average. Ginger could fly there in a few seconds, and report what she can see from near at hand."

"All right." the pilot did not wait for confirmation. "Maria, you're keeping direction well enough; you don't really need either me or Pete."

"Have you been watching me too? I thought you were mapping the crater."

"Between times. It wasn't just radar that spotted the new faults. Status, I can't see any difference in the lake, but your memory is better than mine. There's the usual cumulus above it, but no rain at the moment."

"Can you see Arthur's Pool?"

"Yes, but the color seems the same to me. Look, all of you use your screens. The whole floor of this crater is acting up. There's a scarp to the southwest that certainly wasn't there when I arrived, and one extending a little way from the south rim spitting white stuff like the one Maria just visited. No wonder you've been feeling jolts."

"Are all the faults running north and south?" asked Belvew.

"Just about. Maybe I'd better land and get Maria off the ground while there's ground left."

"There's no hurry about that," insisted the commander. "You can't land in this fog; it'll have to be down by the lake as usual, and there's no point in doing it at all until I'm nearly there. Besides, I need to look at the pool—how about more

samples from there, right now, Cheru? Or have you been keeping track already?"

"There are lots of samples analyzed and filed," was the answer. "I don't know the details myself; I've been doing them, not thinking about them."

"Status?"

"There has been a steady increase of complex organics in the pool. Material from Commander Goodell body seems to have been diffusing at a rate much higher than the temperature would render likely. Whether this can be the cause of the color change is uncertain; the two rates do not match at all closely."

If any of the group felt discomfort at this calm report, none made it audible. Maria thought a moment before speaking.

"We have labs at the other pool here in the crater. Do they show anything similar?"

"No. No change."

"How about the ones near the factory—the one here?"

"Small changes, so far of no apparent significance."

"Anything interesting from the seismic net?"

"Yes. There seems to be a body of liquid below the crater, about three times its horizontal area at the widest, top at a depth of fifty-three kilometers, bottom about one hundred fifty."

"Maria, get out of there! Get off the ground! That's got to be a magma plume!"

"More likely water, Gene. Are you asking Ginger to land beside me in this fog?"

"Well, no. But hurry down to the lake, and water is magma here!"

"The commander has eighteen point five hours before emergency status," the processor interjected.

"So who's worrying about your suit?" snapped Belvew. "That crater's trying to become a volcano. Eighteen hours could see its floor all cut up with faults or covered with fog so no one could land anywhere anyway."

"Is any sort of prediction possible, Status?" Maria was not nearly as calm as she tried to keep her voice,

"Not from present data. The liquid may be the source of the fog, but I have found no trace of a feed from the depths to either of the fog sources. The probability that both the fog and the liquid are water seems high, in spite of the lack of ice crystal structure in the former."

"I can make a guess at that," Akagewa cut in. "The gas coming out of that crack is mostly nitrogen, with a healthy trace of methane. Its temperature at the height where the lab is bobbing is about a hundred and ten. I suggest the white stuff is water, supercooled on the way up from the magma chamber, showing no crystal structure either because it cooled so fast it's a glass, or because the drops are so small surface tension keeps them liquid. Either would explain the lack of structure."

"Maybe it would explain something else," the commander put in, using a tone that bothered Belvew.

"What's that?"

"I've just been knocked down by another shock—"

"Why didn't you tell us, or at least Status?"

"Because it's becoming routine. I landed on my back as usual, and this time rolled over to push up with my hands instead of my elbows. The white stuff is sticking to the front of my armor, I see; and I think it must have been sticking to the back for quite a while. That part has been feeling surprisingly warm for the last half hour or more. I can't see or reach my back but I bet it's there, too, and is not only acting as insulation but providing heat as it freezes."

"Why should it freeze?" asked Martucci.

## Seismic Sidetrack

"Loss of spherical shape would drop the surface tension and the pressure. Ask Gene why rime ice forms on wings. If I'm right, I'm pretty well covered by the stuff now. At least it's not interfering with my walking."

"It's interfering with something else."

"What's that, Pete?"

"I can't see you any more—at least, I can't distinguish you from the rest of the white stuff. I hope you're still having no trouble with your trail."

Maria made no answer to this, but gave an order which Belvez interpreted as one.

"Ginger, get down to one hundred meters and circle over the area where I should be. Look for me as carefully as you can without risking the jet with low speed. Call out if and when you see me. I'll keep moving, which should help."

"Does that mean you *can't* see your back trail?" asked Belvez.

"I can see it, but not as far back as before."

"Is the fog getting thicker?"

"I can't tell. There's nothing *but* the trail that shows at all in this white stuff. It may be heavier fog or faster filling in of my tracks or some of both."

"Then travel! Get as far as you can as fast as you can! Try to get out of the fog before you lose orientation entirely."

"That's what I'm doing. But there's a limit to my speed, remember. If I try to run, I automatically jump, and if I jump there's a very good chance I don't land on my feet. That doesn't help speed."

"I hear you, Ginger. You're almost overhead . . . I caught a glimpse of you; this stuff can't be as dense as it looks. You went not quite overhead. I was a little on your right."

"How long was that before you spoke?"

"Two or three seconds after I reported hearing you I caught the glimpse."

"Good. I'll be coming back over that point in sixty seconds from—**NOW**. I'll be heading straight toward the lake."

"You can still see that? The fog hasn't blown over it yet?"

"Not enough to hide it. I'm turning. Can you still hear me?"

"Yes. Lucky this isn't Earth; in a blizzard like this the wind would never let me hear anything else."

"On Earth we wouldn't be this worried about you," snapped Belvez.

"In a blizzard? You'd better read about Scott and Shackleton. Even Earth isn't always a really nice place. Ginger, you're coming—**THERE!** Right overhead!"

"Good. You're only about thirteen hundred meters from the lake, and should be able to see your way in six or seven hundred. Can you hold your heading now? Should I go back to filling in geography-time derivatives for Status, or would it be best to keep near you and give you direction every minute or two?"

"Work on the data." Maria spoke firmly, but not loudly enough to drown out the start of an answer from Gene. He failed to complete the first word, but no one doubted its general flavor.

"All right." The roar of the ramjets faded, and Maria resumed her hike. Her suit was beginning to feel a little stiff, presumably because of the accumulation of whatever-it-was at the joints. She turned her mind firmly from that phenomenon, and asked Status to update her on seismic information as she walked.

"There has been no major change, though finer details are being added. The new can lines are providing much data in spite of their spacing. The magma or water reservoir is as I

described it before. I have can now trace the crack which is feeding gas to the vent line you examined. Six more such faults exist, outlining a prism of crater floor, but have not yet reached the surface. Practically all the activity is under the crater; it may be that the impact itself has some connection with what is going on."

"That would suggest that it's very recent," Maria commented.

"Quite possibly. However, there is little difference in the average thickness of the smog sediment inside and out, so either the crater is quite old or the general surface is being reworked much faster than we thought."

"Status," Gene cut in, "tell us more about those six feeder faults. Where are they? Are they *changing*—getting any closer to the surface?"

"They are much shorter than any of the others. They intersect to frame the lake and immediately surrounding area in a rough hexagon or, in three dimensions, to place it at the top of a rough prism. I can give you precise coordinates if you wish. They are extending fairly rapidly, and will reach the surface in approximately eight hours at their present upward rate. I cannot tell which side of the resulting faults will be the higher; I have no reliable way to infer stresses from the behavior of the seismic waves."

"But there's a good chance that the whole lake area will lift up on a six-sided platform in the next few hours."

"Or sink. A chance, certainly. It would not be a reliable prediction."

"What would that do to available landing space?"

"That is already decreasing, assuming a six hundred meter landing slide. If the faults I have just reported reach the surface it will be necessary to land further to the south than before, if we continue to do so east and west. Any other run direction would have to be farther from the lake."

"And from the Commander?"

"Yes."

"Hear that, Maria?"

"Of course I heard it. I'm hurrying. I still think it's important to get a good look at Arthur's Pool."

"Do it from the air! Get out of that crater as fast as you can!"

"As long as I'm heading near it anyway, let's not argue. I assume, Status, that the tunnel is no longer of primary importance. How about the general plan to move to the surface?"

"That will have to be dropped until a new settlement site is found. The crater is now unsuitable."

"And Arthur's—uh—experiment is wasted?" asked Ginger.

"Not necessarily. His pool is well supplied with labs, and we can keep track of what happens there unless it and they are all destroyed. Even that could be informative."

"Then I should land as close as possible to that spot."

"Not until I get there and tell you to!" snapped Maria. "The jet is less expendable than I am, right now, and you know it."

"I know it, but I don't believe it. Are you able to see any better yet?"

"A little. I'm having to move more slowly, though; the knees of this suit are getting stiff. I suppose no one can see me yet; I must be pretty well covered with this stuff, and there still aren't any bare spots I could stand on for contrast."

"I'll come back and make another pass. You should be getting out of that cloud by this time. There; I'm heading where you ought to be. Can you hear me?"

"Not yet. Where are you?"

## Absolute Magnitude MSFA

"Just crossing the south rim, inbound," answered Ginger. "Half a minute should bring me about over you. I'm at standard."

The commander waited briefly. She heard the jet in a few seconds, looked up in the hope of seeing it, and just barely succeeded.

"You're a couple of hundred meters off to your right—**NOW!**"

"You haven't held course, Maria. How about using the wind? It's still from the west, and you can see the stuff blowing."

"Too turbulent to be useful, as least close to the ground. I'd thought of that. Getting knocked off my feet, and I suppose picking up more covering, every few minutes doesn't help."

"You know where she is. Pick her up now!" cried Belvew.

"Stop thinking of that!" Maria had never sounded so much like a commander. "Make another pass over me, or as nearly over me as you can, Ginger, heading as straight as you can for Arthur's Pool. You can still see it, can't you?"

"Sure. All right, coming back. Call when I'm closest, and tell me which side you're on and how far if you can. I'll be a minute or so with the turn. All right?"

"All right?"

**"ALL RIGHT?"**

Maria couldn't answer. She was off the ground again, totally disoriented. She snapped both hands above her helmet to protect it in case she landed head downward, and ignored Ginger's increasingly frantic calls until she struck the surface again.

Her heels touched first, with her body extending back and up at about forty-five degrees. On Earth she would have slammed down on the back of her helmet; on Titan the rest of the fall took well over a second and she had plenty of time to spin cat-style and land on her hands. A medium hard one-handed push-up brought her back on her feet; she felt a fleeting glow of pride that she hadn't overdone it—much. One short backward step kept her from falling the other way.

"I'm all right. I got tossed around by another quake. I don't know whether you passed me then or not."

"I must have. I'm half way to the rim—Maria! My Aitoff shows a new cloud erupting all around the lake! Is it blocking your sight?"

"The eight hour prediction was inaccurate," Status interrupted, "but the qualitative extrapolation offered by Sergeant Belvew was very good. The lake is now near the north rim of a hexagonal area well marked by fume-emitting faults. It will take a minute or more to determine the new height of the area. The lake itself has shown no significant change in shape or area. If Major Xalco will try again to locate the commander—"

"Is that area big enough for landing?"

"Is the Pool inside the prism?" came Belvew's and Maria's interruptions simultaneously. Status untangled the sound patters, though none of the human listeners could. The processor answered the commander first.

"The pool is inside the area described, though quite close to the northwest corner. It has not been visibly affected by the shock. It should be possible with care to land the jet within the hexagon. I would advise landing westward, touching down as near the east corner as the pilot's skill permits."

"Take it, Gene," Ginger called promptly.

"Not yet. Finish your run. We need to know whether Maria's inside the hexagon, too. It she isn't, and the boundary

is hard to cross for any reason—remember how she got blown into the air at the other place—we *don't* want to land there."

"Right. Give me the call, Maria, if and when. Here I should be coming."

"I hear you but can't see you. The fog's a lot thicker, I'm afraid."

"Not even a glimpse?"

"No."

"Any guess at the direction of my sound?"

"Not in armor."

"Shall I make another pass?"

"No use, I'd say. If the new fog allows, you might go as low as seems safe over the hexagon and help Status find out if it's higher or lower than the rest of the floor. I'd guess it had dropped, or rather that the outside rose—I was tossed upward again."

"You're assuming you're outside."

"Yes, Gene. Unless my earlier position was wildly off or I got tossed several hundred meters, I *have* to be north of it still."

"I suppose so. All right, just go on, I guess. You can see your track still, can't you?"

"As a matter of fact, no. The snow seems to have been tossed up, too, I'm afraid."

Not even Status had an immediate answer for this. After some seconds, Belvew asked, "Can you see the tracks you make right now—after the shock."

Maria experimented—the answer seemed obvious, but she was taking to chances on another trivial surprise—and answered affirmatively.

"All right, just start walking, and keep a straight line as you did before, I'd say. If you're lucky and get into clear air, fine. Sooner or later you'll have moved far enough so Ginger can get some idea of distance and direction from when you can hear her pass over, even if that doesn't give much resolving power. Can anyone think of anything quicker? Staying put certainly won't accomplish anything."

Maria admitted this, and decided not to mention that the joints of her armor were getting stiffer. There would be time enough for the others to face that worry if and when she were actually immobilized. It would have been nice, she reflected as she started to walk, if she had had a rope, or a few meters of wire, or something like that to drag behind her. Even if that were tossed off the ground, it would have to fall back somewhere near its original position.

*Theia* boomed overhead, and the commander reported the sound as soon as it started to fade. Two minutes later she heard it again, this time with a fainter maximum, and she passed on this information as well. The third time was fainter still.

"All right, I think I have you fairly well pin-pointed," came Belvew's voice—he had evidently taken over the jet. "Just keep travelling, and report any sort of change you catch. You're about where we thought, only a few hundred meters from the nearest of the new faults."

"You said they were putting out fog, too. I can't see any difference in the vision range yet—of course, I don't really have any idea of how far I'm seeing. I think I hear something besides the jet, though."

"What?"

"It's like the deep whistle of the stuff coming from that other fault, but that may not be objective. Keep your fingers crossed, those of you who aren't flying. I'm still walking." The last statement was not a complete truth; her armor was continuing to get stiffer, and the walk becoming a totter.

## Seismic Sidetrack

Twice more in the next few minutes she was thrown from her feet, but neither time was her track too badly smeared. The escaping vapor, if that's what it was, grew louder; she had trouble hearing the jet at all when Belvew made another attempt to locate her, but they both felt sure she was approaching the nearest edge of the hexagon.

She was. A scarp loomed suddenly in front of Maria just as she was seriously wondering whether she would have to report her travel problems—and also wondering what good the report would do. It was only a dozen meters away; the fog was far thicker than before.

"No wonder I was tossed around, even if the prism went up more than I did. Your hexagon is over two meters above the rest of the floor, at least on this side," she reported. "I wonder whether this is something common here, or whether Arthur just picked a very bad spot."

"It will take a lengthy review of the worldwide mapping records to tell," Status replied. "Nothing of this sort came to anyone's attention earlier, and I was instructed to test for albedo changes, not heights."

"You can get up on the new level and check Arthur's Pool in a few minutes," Belvew said happily. "I can't be sure where you hit the edge, but it almost has to be the north face. The pool could be about in front of you, or anywhere up to three or four hundred meters to your right. You'd know it, I suppose, if you were right at a corner."

"I might, but not if it were more than a dozen or two meters away. About getting up . . ." the commander's voice trailed off.

"You can jump two meters—or are you worn out again?" Belvew made no specific reference to Maria's ailment, though he was of course aware of it.

"I'm afraid that's not it. This white coating has been stiffening up my joints for quite a while now, enough to make walking difficult. I'll try, but I'm not sure I can jump at all." There was silence from the Station while she tried, reported failure, and tried again.

"I can't get up half a meter. Check the maps you have so far. Is there *any* place which looks as though it *might* be anything but a vertical cliff? Surely you can't just push a prism of ice up like this, especially if the ice is effectively rock, without some irregular cracking somewhere."

Again Status took unintended parts of the remark, literally. "Not enough is known about the mechanical properties of ice at these temperatures. Remember how Sergeant Inger was taken unaware by its expansion coefficient. Our only pictures of this new feature cover the minutes since it formed. There are several irregularities around its perimeter, on all six faces including the north one where you presumably are. If you can still walk, I advise you do so in either direction along the scarp."

"If—" Belvew choked off the exclamation. Then, "I'm setting down. Go left, Maria. It's clearest to the east. You *can* walk, I hope."

"Oh, yes. But we must check the pool, and should check the lake, and they're up top."

The jet's roar suddenly became audible over the sound of escaping vapor, and faded again. Belvew continued as though the commander hadn't spoken.

"I *can't* land up there."

"Why not?" came the usual multiple voices.

"The area is just barely wide enough for a landing at all, approaching just above wing-stall. At that speed the turbulence from the fog blast—I felt it with the gages a hundred meters

up—as I cross the edge would wreck the plane unless, by pure luck, updrafts under both wings were exactly equal. I know I'm safe up here, but once is more than enough."

"I can get down again after I get up," Maria replied calmly. "Don't try to land anywhere until I'm through here. That's an order."

"How do you mean that word *through*?" Belvew let the question out, and immediately regretted it. Maria had tact as well as firmness, however.

"I think I see at least two ways of getting up," she said, still calmly. "At the other fault, the updraft tossed me off the ground; this one seems a lot stronger. With luck, Bernoulli effect will keep me inside the stream until I get to the top."

"And maybe longer. What will you do hanging a couple of meters out of reach of the ground?" A little to her surprise, the voice was Seichi's, not Gene's. She had to hesitate only a moment before answering.

"I'm a lot bigger than the lab, and can do things about my overall shape. I won't be out of control."

"What's your other idea?" asked Belvew predictably.

"Build a ramp. The 'snow' is three or four centimeters deep."

"How much snow will she have to move, Status?"

"It depends on the angle of repose of the particles, another unknown quantity. Its behavior under Earth conditions is irrelevant; it is sand or dust here, if it actually is ice. Assuming a twenty degree repose angle, the volume would be approximately thirty-two cubic meters. If the commander's estimate of snow depth is correct and general, it would require all the snow within a distance of some sixteen meters of the climbing point. The material is apparently available, but the time required to move it without tools may be excessive. This ignores the problem of building against the updraft at the inner side of the ramp. The commander has about eighteen point two hours, extrapolating from the last two hours' consumption, to suit emergency status."

Long before this sentence was finished, Maria had approached the whistling crevice at the base of the scarp. By the time Martucci had pointed out that she could accumulate a large volume quite rapidly by the snowball-rolling technique, and Seichi had reminded him that snow did not self-weld readily at ninety Kelvins, she had leaned for the first time as closely as she could against the smooth ice face and been hurled backward with satisfying violence.

By the time she had tried again, backing against the wall and pushing as hard as she could with her legs, which was not very hard under Titanian traction conditions, Cheru had pointed out that the stuff had at least stuck to the commander's armor, so maybe snowballing would work after all.

Before the argument got any farther, Maria interrupted. "What I can see of my armor is now nearly clear of its white coating. I can move quite freely. Something in the vapor stream got rid of it, I guess," she concluded.

"It was hot enough to melt it, and blow the liquid away," Belvew proposed at once.

"The dust particles sand-blasted you clear," Seichi came back at once with the obligatory counter-hypothesis.

"If they stuck in the first place because of altered surface tension, they'd have just added to the coating this time. It has to be temperature."

"That couldn't have been why they stuck. Surface tension won't hold any size water drop liquid down at ninety-K."

Maria again ended the debate without suggesting this was not the time for it; she was interested in the reason herself, but

# Absolute Magnitude MSFA

had not needed any of the recent reminders about her suit's depletion or what work had to be done.

"I'm jumping—now!" There was a silence of two or three seconds.

"Make it? asked Belvew.

"Not quite. High enough, but I bounced off the fan of vapor—it's all right, I was able to land on my feet. It must have been a matter of armor shape; I should have been pulled into the stream."

"Pushed." This was Martucci.

"Don't be a purist. Here I go again—I'm in, this time. Bouncing around, as someone suggested, a meter or so above the top of the scarp. I can regulate my height with arms and legs—there. Now—blast, up again. I'm oscillating. I can vary the rate and amplitude by reaching—there. Resonance. I'm out, and on the right side. Oops—there's a breeze trying to push me back into the current—"

"I told you so," said Martucci. Maria ignored this.

"No traction to speak of—wait, I'm all right—I'm away from it now. The wind is only within a couple of meters of the edge. You were right, Gene; don't try to land here. The visibility isn't very good, either. I'm heading right to look for the pool."

"It's only about seventy meters," Martucci informed her.

"You can see me?"

"Sure. There's contrast again, now your whitewash is off. Head along the edge to your right 'til I tell you to stop, then turn straight away from it and hike about thirty meters. Not too close to the edge; remember that Bernoulli wind."

"Is the seeing worse than outside?" asked Belvew. "That west wind is covering the hexagon with fog, or dust, or whatever's blowing up on that side. Is the stuff blowing along the surface, or overhead?"

"Surface or both, I'm afraid. I can see the rim, but not the pool yet."

"It's time to turn," called Martucci. "Right angle, away from the edge. Tell us when you see the pool, so we can give Gene a real measure of the visibility."

There was silence for a few seconds.

"I think it's there—yes, I can see its near edge."

"Sixteen meters," muttered one of the watchers.

"The color is funny, a lot redder than any I've seen. Certainly redder than the one you got stuck in, Ginger. I can see four of the labs, now; I hope they're working. I'm right at the edge, now. The color isn't the same all over; some of it, away from the rim, is almost black, and there are a few spots where the snow seems to be sticking. They're all several meters from the edge, and none of the labs is anywhere near one; shall I get a sample to bring up?"

"No!" cried Ginger and Gene together. "All we need is to get you stuck the way I was," added the former.

"You got loose."

"From stuff that looked different. Don't take any chances. Pick up one of the labs and toss it onto the white, but keep your feet out of trouble."

Maria followed this suggestion, and scored a center hit the first time. She was getting used to the gravity, evidently.

"I won't step on it, but I'm going to get a sample from the edge to take up. We can do more with it in the Station than the labs can manage."

"Be careful!"

"Relax, Sergeant. I said I wouldn't step in it." There was silence for over a minute, a very tense one for the watchers in the Station; instrument resolution wasn't quite good enough to

show what parts of Maria's suit were actually above the pool, especially when another shock tossed her upward. She landed feet down about half as meter onto the stuff, but was off before it managed to stick to her boots—if this variety were going to. She did not report all the details to the others.

"I have a chunk," she called at last. "It's gooey, like the stuff that caught you, Ginger. I don't have anything to put it in, but I can carry it in one hand—the piece is about fist size. I'll leave the digger. I don't know why I carried it this far. Now, Gene, I'm willing to make you happy. I'll pass up the lake. Where can you land?"

"Closer than I thought. If I go into the wind, which isn't really fast enough to matter, I can touch down half a kilometer from the corner at the east end of your edge—you're at the west, about the same distance from it. Go back to the edge, turn right, start hiking, and please don't let any new cliffs form in the next few minutes.. I'll skid to about three hundred meters of the corner, and can drive closer on rockets. Jump through the updraft when you hear I'm down. Don't get down any sooner; if I have to abort and land somewhere else, it'll be easier to cross the hexagon than go around it. I'm lining up now—slowing down near pipe stall—letting down slowly—I don't want to get too low until I cross the crater rim." There was half a minute of silence. "Over the rim. Rocket mode. Height one fifty—one hundred—" the pilot ceased reporting for several endless seconds. "Touched down, sliding as usual. I'm coming into the fog and can't see very far ahead, but I made the approach a little north of your edge so there'll be no trouble if I slide too far. There; stopped. Pete, how far am I from Maria? Should I push a bit closer?"

"You can go another hundred meters. Maria, you still have a way to go. Don't hurry; getting picked up again by the updraft would waste time."

"Your suit has seventeen point six hours."

At least, walking was now easy.

"Your suit has seventeen point four hours."

At last Martucci's voice. "You're there. Commander. Go ahead and jump. Try to land so you don't pick up another coat of paint."

"The updraft will have more to say about that than I, but here goes. I'm backing off—picking up speed as fast as I can—thank goodness ice isn't slippery here—**THERE!** I'm through, but I'm somersaulting—don't know how I'll land—got a fair kick upward—coming down—feet first but leaning forward—good; I caught myself with one hand. Pete. I can't see the jet. How far and which way?"

"One hundred thirty meters, the way you were travelling when you jumped—about forty degrees north of east. Just keep going, as fast as you can."

"That's not very fast. The ground's shaking again."

"So the accelerometers are saying," Belvew agreed. "Status, record their readings. They should help make sense of the can reports." Maria silently gave thanks that he could work as well as worry.

"I see *Theia*," she called as the dark bulk loomed in front of her. "Good guiding, Pete. Twenty meters—the fog's thinner—ten—I'm there. Climbing aboard—hatch open—inside, sealed up."

"You want to fly out yourself?" asked Gene.

"No. You keep it." The commander let it be assumed that she was acknowledging Belvew's piloting skill; she was not going to mention any other troubles while worry might interfere with his flying.

## Seismic Sidetrack

"Fine. I don't know what's ahead well enough to risk a westward takeoff. It'll have to be downwind. No matter, with that wind speed." The right engine roared, and *Theia* slid slowly forward, turning gradually to the left until her nose pointed back along the landing approach.

"Ready, Boss?"

"When you want."

Both pipes thundered and Maria gratefully felt the acceleration which Gene could only read from his instruments far above. Her own screen showed little detail, though it was set at a wavelength which gave several hundred meters of fog penetration, and she watched the center of the Aitoff ellipse tensely.

The ground was fairly smooth, but with bumps to let her know by their cessation when *Theia* was airborne. Her tension remained; the crater rim was not very far ahead, she knew. How far had the run up to flying speed taken?

She remembered the flight instruments, and glanced at them.

Less than two kilometers, and it was over three to the rim—good—altitude fifty meters—a hundred—a hundred twenty as the wall flashed into view below the center of her screen. At the same moment she felt, just barely, the slight jolt as Belvew cut the reaction mass flow and let ramjet take over.

"Want to fly now, Maria?" he asked.

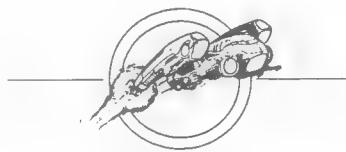
"No, you'd better keep it. I'm not sure I can."

"Why not? Fatigue again?"

"A little, but that's not the problem. I can't get this sample of the pool off my right glove. Do you think it would be smart to warm this compartment up?"

"Commander!" Martucci cut in excitedly. "We wondered why you were tossed upward from the low side of those faults. It's just friction! The rising side dragged the other with it for a moment! Ice isn't slippery there, remember!"

Belvew, speechless for once, gave his attention to *Theia*.



### SCAVENGER'S NEWSLETTER

Janet Fox, 519 Ellinwood,  
Osage City KS 66523-1329

The monthly marketletter for Sf/Fantasy/Horror/Mystery writers and artists with an interest in the small press. SCAV has been bringing writers and artists timely market news on a regular monthly frequency for over ten years! Besides market info SCAV presents mini-articles, small press reviews, commentary and poems.

Sample \$2, \$15.50/yr, \$7.75/6 mo bulk mail. \$19.50, \$9.75 1st class. Canada \$18.50, \$9.25. Use a money order in US funds for Canadian orders. Inquire about overseas prices.

Also, SCAVENGER'S SCRAPBOOK, a twice/yearly (January and June) roundup of SF/Fantasy/Horror/Mystery Markets in capsule listings. \$4 for one, \$7/2 in US and Canada.



## AN INTERVIEW WITH BOB EGGLETON

Bob Eggleton is this issue's cover and interior illustrator, and perhaps the top artist in the science fiction field. Bob is a perennial Hugo nominee, and this year he won the Hugo for Best Original Artist. When we set up the interview neither of us realized that we had scheduled it to happen during the middle of an eclipse. Somehow, interviewing Bob Eggleton in the middle of an eclipse seemed very appropriate.

**Absolute Magnitude:** I understand that you're quite busy these days. What do you have forthcoming?

**Bob Eggleton:** I finished a whole lot of work. I really did a ton of stuff over the last few months. This past winter, I got a bit of cabin fever because I was really really booked with stuff to do. I finished a job for Harper, a reissue of a Gregory Benford book. I also did the cover for the new Jack McDivit Book which is coming out from Ace. It's a really high-profile book and they're very excited about it. I've been getting into some other things that are a little different from my normal book cover fare. I'm doing my first art print—at least my first fantasy art print. I'm doing some posters to go with my award-winning piece *Orc Arora*, which won best of show at World Con last year. Then I've got the Necroscope T-shirts, I did some of the art six and seven years ago. Now they're coming back to haunt me. Hopefully they'll be really good. The T-shirts are being released by Publisher's Book and Audio, out of Staten Island. They're going to be hot shirts when they come out. What's nice about the posters and shirts is that they're generating some found money for me, and I won't have to worry from job to job like I have been doing. I've also got some personal work going on. One that I hope will be a book some day. I'm also planning my art book, *The Art of Bob Eggleton*, as many people have requested me to do. I want a bit of divergence from doing just book covers all the time, I'd like to do something more creative and stranger, if you will.

**AM:** You do a lot more magazine covers than other artists of your stature do. When you approach a magazine cover how does it differ from the way you approach a book cover?

**BE:** The book cover is essentially packaging; it's designed as point-of-purchase sale. You have less than a second to get someone's attention; when you design the cover you're not so

much illustrating—the advice I give to many new artists is don't worry about illustrating, worry about packaging design. It's just like packaging for toys or anything. You're packaging a product, the product just happens to be a book. You've got to make the most effective, simple, visual punch that you can. The cover really does sell the book. Good reviews and the author's name do help a lot too, obviously, but for newer and lesser-known authors the cover does sell the book; it has to be designed specifically for maximum impact. When you're doing that a lot of esthetic considerations, such as how well it suits the book, have to take second place. Magazines are a lot different. Magazines go out to subscribers, that means that essentially it comes into the mailbox and the selling is already done; it's a pre-sold audience. Even magazines on the newsstand are purchased by the same people over and over and over again. Magazines have very loyal readerships, that's what has kept magazines like *F&SF* and *Analog* going for decades.

**AM:** So you don't have to sell the product.

**BE:** Exactly, now you can spend your time concentrating on artistic and esthetic concerns rather than worry about whether or not it appeals to the right age group. It's a strange difference. The magazine work invariably gets more attention. The Hugo nominations for best original art quite often go to magazine covers, that's what gets seen; that's what everyone gets in their mail box. I try to tell new artists this: support the magazines because ultimately they will support you. They will get your name around. They don't pay as much as the book covers, but it's still supporting. I've done the cover for this magazine, I'm doing a cover for Algis Budrys' *Tomorrow*, I'm doing the cover for Marion Zimmer Bradley's *Fantasy Magazine*. I want to support magazines because ultimately magazines have a lot to offer.

**AM:** You're a big Godzilla fan, as an artist what is it about Godzilla that attracts you?

**BE:** Godzilla was my childhood hero. I think he's this big monster with a lot of charm, the way the Japanese do him. I'm a bit leery of the American Godzilla, only because Americans don't create monsters with the same charm as the Japanese. What works so well in any Japanese monster movie, and I include *Ultiman*, *Caju*, *Mask Rider*, *Super Giant*, and the like, is that they are beautifully shot. There is a movie called *Prince of Space*. It's one of the crummiest movies I've ever seen. The head alien looks like he was lopped off of a pinball machine. It makes *Plan Nine From Outer Space* look serious; but the way it's shot, is very artistic. The set-up of the shots is absolutely beautiful. It's well-composed, like a good painting. Ultimately I relate to that. I just love Godzilla, I thought maybe I was the only adult that loved Godzilla, but I was wrong. Lots of people love him. Twice I've had the professional opportunity to paint Godzilla; that was a hell of a lot of fun for me. There are a lot of science fiction people who just blow Godzilla off. They say, "What do you paint that stuff for. Godzilla is so stupid looking." Godzilla is this and Godzilla is that. Well he sure is popular. Whenever I do my slide show at an SF convention it ends up being a standing room only crowd. That has to say something. Godzilla calls to your inner child, it takes me back to times when I really had a lot of fun with stuff. I was inspired to draw Godzilla which got me drawing dinosaurs and all kinds of wonderful stuff.

**AM:** Are there any writers that you would like to work with that you haven't had the opportunity to work with?

**BE:** I'd love to do more Arthur C. Clarke. I've done a couple of his books. I did *Rendezvous With Rama* and *Beyond The Fall Of Night*, the book that he kinda' sorta' wrote with Gregory Benford. They essentially took the old

# Absolute Magnitude MSFA

*Against The Fall Of Night* and had Greg write a sequel to it. They put the two together and called it *Beyond The Fall Of Night*. I did the cover for that. I would love to have done *2001*. I would love to do *2010*. I see nothing wrong with doing more of that type of work. Ray Bradbury, I've never done anything of Ray Bradbury's. I'd love to do something with Harlan Ellison too, not only is he one of the best writers in fiction today—not just science fiction—he's great, he gets involved in the creation of the picture process. He's got a good artistic mind, a visual mind. If you say to him, "Harlan, what do you think would go with this? I'm really stuck." he'll come up with a great idea. Unless I miss my guess, he's extremely instrumental in what the image on the cover of his books looks like. I'd love to do H.P. Lovecraft. I've illustrated him indirectly, I did a painting of the Cthulhos, but I'd love to actually do something like "At the Mountains Of Madness." He was an incredible writer and he was from right here in Providence.

**AM:** You use very bold highlights, was that a conscious decision or just something that developed over time?

**BE:** It's just something that developed. I was influenced by Albert Beerstat, the great Hudson River Valley painter, who did some wonderful mountains. He did these really strange lighting effects. This guy, if there wasn't a lighting effect he'd invent it. Then there's Frederick Church and Thomas Cole, they used clouds to great effect to regulate their lighting in pictures. They'd have a lot of highlights. That's what I like to do. I like to work from the highlights. I have a lot of unorthodox ways of painting that I really can't explain. Michael Whelan, for instance, has a very methodical way of painting. It really works for him. I invent my way along, I improvise and I mess around. I do things that people say you can't do just to see what happens. I use everything to its own end. I never make the thing a technical painting. I don't say, "I'm going to do this painting all with this kind of a brush." I usually throw in everything but the kitchen sink. Don Maitz works similarly, but he takes longer to do it than I do, partially because he works in oils. I envy anyone with the patience it takes to work in oils. I get very bored with paintings very quickly. I tend to work kind of fast on them. I do try for a strong lighting effect, I'm known for my lighting. I'm

often praised for it. That's very important to me, that's my strength. I don't do just one subject matter, whether it be science fiction, fantasy, or horror. I depend on the lighting effect. Lighting is the most important thing in a painting. Everything else is subjective.

**AM:** So you don't just stick to one tried-and-true, safe method.

**BE:** I work with acrylic only because I worked with oils and I ended up getting them all over me. I've had art reps and agents tell me you have to do it *just like this*, so the layman can understand it, so the corporate executive who is writing the check can understand it. To set yourself up in one method is self-defeating. By definition an artist is an explorer, one who tries different techniques to achieve one end goal. You'll die if you get stuck in one groove. I've tried not to do that. I almost got stuck doing just airbrush work. I started losing my sensitivity and I felt like I had to get it back. So I wanted to try different things. It keeps me on an edge, I have a creative edge. It makes me very nervous, but I do have a creative edge and I'm happy about that.

**AM:** What can you tell me about the collection of your work that you're putting together?

**BE:** I'd like to put together an art book entitled *The Art Of Bob Eggleton*. I'd like it to have five or six paintings that are unpublished. It's a good hook to get people who already know my work to buy the book. The problem I have generally with art books is that they end up being collections of paperback book covers. Michael Whelan put out a gorgeous book: *The Art Of Michael Whelan*. It's really lovely, a few other artists have put out books equally as good. Tim Hildebrandt has a very nice one. Carl Lagrens book is incredible, I highly recommend it. He talks about his whole life, his troubles, his worries, and what makes him create. I think it's really nice to see that side. It's the most interesting read you'll ever get. He also shows a lot of his early work. You see his progression as an artist. I think it's really important to show that. With mine, I would like to show a lot of my book covers; I'd like have it divided up into sections. In one section I'd explain how I do book covers and why a book cover looks the way it does. I'd explain why some people don't like book covers,

why I don't like a lot of my own book covers. I'd also have a section on how things work as far as painting, and then paintings that weren't done for book covers that were just illustrations for me. I think that it's really crazy to just do book covers all the time. I think you have to explore and you have to grow as an artist. If you fail to grow you end up losing in the long run. A lot of younger artist don't get that. They're very obsessed with doing one thing and making money. It's a very commercial attitude to take. A lot of people say, "Oh you're the guy who does astronomical art." And I say, "Yeah, but I do fantasy art, and I do horror art, and I do surrealistic art, and I do wildlife art." I think it's nice to dabble. If you get stuck on one thing the public may know you for it, but that's short term, ultimately you have to grow. One of the hardest things in the world is taking a chance and doing something different. The biggest compliments that I get is when people tell me that my work is growing and developing. That's wonderful. Recently, I got a letter from a fan who was reading *Asimov's*, he pointed out a technical flaw in one of my paintings. I was hoping that no one would see it, but he did. It proved to me that someone was really noticing these things. Someone gets the magazine and really scrutinizes the cover. There are people who look at covers as more than decoration.

**AM:** What's the least rewarding part of your job?

**BE:** The overtly business aspect of it. Dealing with people who don't understand what I do. They don't understand that what I do is a business, that I have a business, that I make money at what I do, that I can't always snap my finger and come up with an image. I do need to eat and sleep and do other various bodily functions. They don't understand that a rush job is not going to be a good job, and that I need to be compensated for what I do. They're happy enough to get the work, but do they want to pay for it? Doing taxes is the monster of the id for me. It's the half of me I can't talk about. I get so beside myself worrying about this that and the other thing. You get accountants, lawyers, and IRS agents who simply don't understand what artists and writers do for a living. They aren't linear jobs. Linear is a big word these days. Being an artist or writer is a very

# An Interview with Bob Eggleton

fluid way of making a living. It's hard for some people to understand that. There are a tremendous number of people in the corporate world who love to control. The greatest exercise of control someone can do is to control their own life and actions. You just can't control other people's lives. Unfortunately there are those in corporate America who do not understand this.

**AM:** What's the most rewarding part of your job?

**BE:** The act of creating a world, something that no-one's ever seen before. That and people telling me that my work takes them there. That's a big reward for me. It's better than the money. Certainly there are better-paying markets than science fiction. It's the esthetic rewards. I've gotten awards, and Hugo nominations [Shortly after this interview Bob won the Hugo for best artist]. The awards let you know you're going in the right direction, but you can't rest on awards. You've got to keep growing and becoming a better artist. When people ask me which of my paintings is my best. I tell them my next one. It's the best way to do it. It's that quest, that feeling that you're never going to where you want to be, but you have the illusion that you might get there. That illusion is what keeps you motivated. If you figure that a painting is your best work and that nothing you do will ever be better, that's it—nothing ever will.

**AM:** It's really getting dark fast.

**BE:** Let's go take a look at the eclipse. [At this point we went outside to view

the eclipse before continuing with the interview]

**AM:** What got you started in the field and how long have you been at it?

**BE:** Exactly ten years ago I started doing book covers. I worked for Baen Books back in 1984. I had some interesting experiences with him (i.e. Jim Baen) and some equally interesting covers. What got me into it was the World Science Fiction Convention of 1980 in Boston, Noreastercon 2. I'd never been to anything like it. I just sort of showed up to this thing and put up my art. I won best amateur artist. It knocked me off of my feet to get all those awards in my first con ever. I realized that people liked my work so I should stick with it, and I did.

**AM:** Is there anything you'd like to say?

**BE:** Only that I'll continue on doing this. This is something that I really like doing; I don't see myself doing anything else. A lot of people think the computer is going to replace the artist. I think that's dead wrong. The computer is a wonderful assistant, but it's only a tool. It's not creative, it takes creativity. You're going to see a lot of hackish amateur work come out because some people in high positions would like to see a computer replace a creative individual.

**AM:** Do you think it's analogous to when drum machines first hit the scene? Everyone said it was the end of drummers, but in the end it was, for the most part, just a fad.

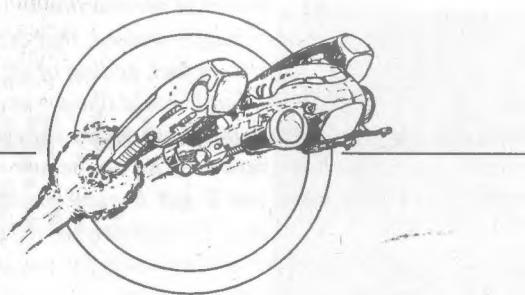
**BE:** Yes, Exactly! It'll be a fad and you just won't have that personal touch. Ray Harryheusen said a wonderful thing in an interview recently. He said the Jurassic Park dinosaurs looked really nice, but they just didn't have the same creative intensity that the moving models did.

**AM:** What do you think of the artists aids they have for computers where you can tell the computer what color you want a brush stroke to be?

**BE:** Again, they're wonderful tools, just as an airbrush is a wonderful tool. It's not a style. It's a means to an end. That's what people need to understand. If there isn't an artist behind it, it isn't creative. I've seen computer-generated drawings.

**AM:** When you're eighty years old looking back on your career, what do you hope to have accomplished?

**BE:** I'm hoping that I'll have a body of work that I'm really happy with. I'm hoping I'll still be working. They say that artists don't retire, they just draw their lives to a close. People ask me what I'm going to do when I retire. I'm not going to worry about that right now. I have to enjoy what I do now. The best thing about being an artist is that you can just keep working. I'm hoping that no matter how old I am I'll be doing really fun and interesting stuff, as fun and interesting as what I'm doing now. I'm hoping it'll be fresh. I'm 33 years old and I don't feel it. I don't worry too much about aging. You just get better with age. I hope that I'll be remembered as an artist and not just a science fiction artist. That would be a good way of being remembered.



## The Letters Page

Dear Editors,

Whatever happened to part two of "Sortie" by Hal Clement, that was in the Spring/Summer issue of *Harsh Mistress*? I was looking forward to reading the rest of the story!

Irma Laszlo  
Parma, OH

—*Erma*, the second installment of Hal's novel ran in the Fall/Winter issue of Absolute Magnitude. It was titled "Settlement." Unfortunately, the fact that it was the second installment was inadvertently left off of the table of contents. We're sorry for the confusion.

Dear Mr. Lapine,

I recently received my copy of the Fall/Winter issue of *Absolute Magnitude* and enjoyed it (just as I had the first two issues of *Harsh Mistress*). I hope things go smoothly for the magazine from here on out.

Sincerely,  
Aaron B. Larson  
Chamberlain, SD

the basics that made the field great.

Best wishes,  
Theodore G. Steinbach  
Milwaukee, WI

—Theodore, thanks for the words of encouragement. We'll keep the magazines coming.

Angela,

I'll be surprised if *Absolute Magnitude* doesn't become a run-away best-seller in the science fiction world.

David MacIntyre  
Christiansburg, VA

Dear Mr. Lapine:

I have only been able to read two copies of your magazine even though I search for it on a regular basis. They sell off the newsstand in a flash, and even used copies aren't available for long. I have enclosed \$4.00 for your latest copy so I won't have to fight for it at the book store.

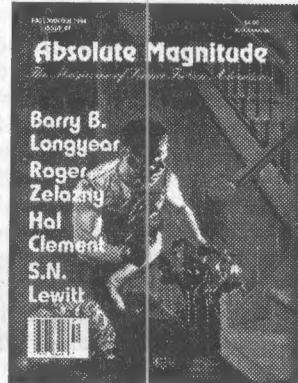
Thank you for your terrific magazine.  
Frank O. Andrew

—Frank, I'm torn in my reaction to your letter. I'm very happy, indeed, that *Absolute Magnitude* is, in fact, selling off the shelves quickly, but I would like for everyone who wants to purchase a copy to be able to. You have, however, hit on the one way to guarantee you'll get a copy, order it directly from us. Though a subscription would be easier, and cheaper, for you than ordering them one at a time.



**LOST AND EXCLUSIVE MOVIES**  
SAYS LEONARD MALTIN  
GIANT, ILLUSTRATED  
CATALOG ONLY \$3.00  
VIDEO SPECIALISTS INT'L  
182-A JACKSON ST.  
DALLAS, PA. 18612  
"WE'VE GOT WHAT  
THE OTHERS DON'T!"

**Subscribe  
Today and  
Blast Off to  
Adventure!**



America's only  
action/adventure science  
fiction magazine!

Yes! I want a four-issue  
subscription to  
**Absolute Magnitude**, The Magazine  
of Science Fiction Adventures (a 1-year  
subscription) and save over 12% off the  
newsstand price.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY STATE \_\_\_\_\_

ZIP COUNTRY \_\_\_\_\_

Canadian & Mexican Subscriptions—Please add  
\$4.00 per subscription year for additional postage.  
One Year—\$18.00; Two Years—\$32.00. Mail  
to: **Absolute Magnitude**, P.O. Box 13,  
Greenfield, MA 01302.



# Absolute Magnitude

*The Magazine of Science Fiction Adventures*

**COMING IN THE NEXT ISSUE!**

**Janet  
Kagan**

Gives us an exciting glimpse into the world of mathematicians in *Fermat's Best Theorem*.

**Denise Lopes  
Heald**

Explores human decency in a post-apocalyptic world in her story *Pools*.

**C.J.  
Cherryh**

Brings us a surprising vision of the far future in the story *Pots*.

**Hal  
Clement**

Checks in with the exciting conclusion to his new novel.

**This is going to  
be an exciting  
issue—  
*don't miss it!***

